BASELWORLD 2010: 35 NEW WATCHES

WatchTime

THE MAGAZINE OF FINE WATCHES

Rolex's new Submariner

WATCH TESTS

Panerai Luminor 3 Days GMT

Parmigiani Pershing Chronograph

Raymond Weil Jumping Hour

WORLD-TIME WATCH REVIEW

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Thierry Stern. Photographed in Geneva, January 2010.
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Thierry Stern
President, Patek Philippe

Patek Philippe Seal

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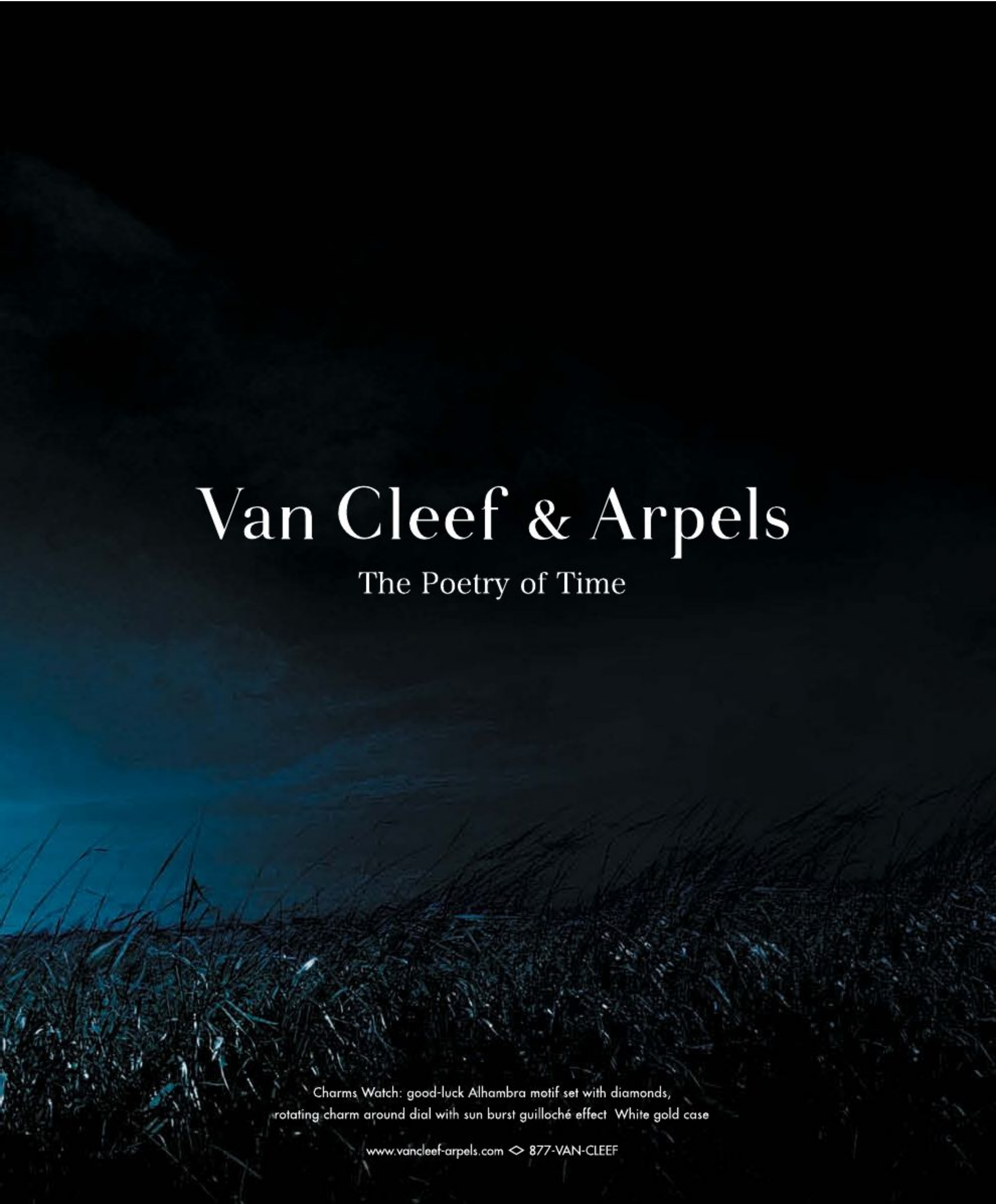

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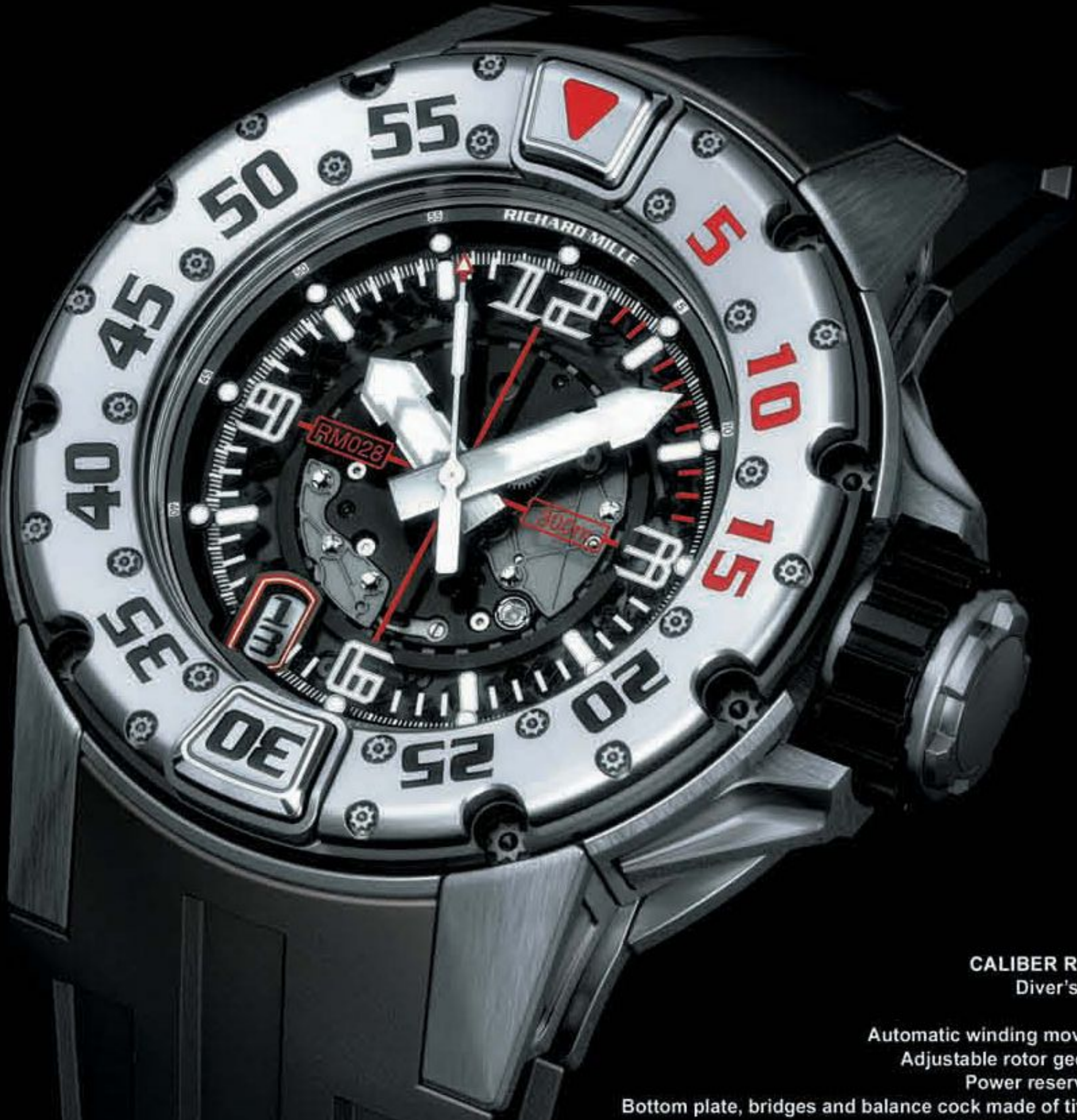

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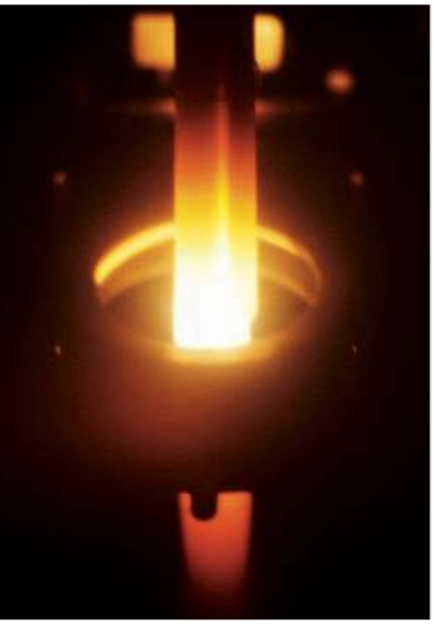
Greetings from Fort Knox

One of the great things about being a watch reporter is that you see a lot of Switzerland and a lot of watch factories. On my first trip to Switzerland, in 1979, I toured Omega's historic factory in Bienne. Thirty-one years and more than 100 Swiss trips later, I've seen the manufacturing facilities of many of the industry's great and good: Patek Philippe, Vacheron Constantin, Breguet, Jaeger-LeCoultre, Audemars Piguet, IWC Schaffhausen, Piaget, Girard-Perregaux, Panerai, TAG Heuer, Breitling, Cartier, Ulysse Nardin, Carl F. Bucherer, Ebel, Longines, Rado, Swatch; the list goes on and on.



Creating the Parachrom alloy for Rolex hairsprings in a furnace at Rolex Bienne

From the beginning, however, there was one Swiss factory so famously secret that it was simply a given that neither I, nor any other journalist, would ever set foot in it: the Rolex movement *manufacture* in Bienne. For its entire 100-plus-year history Rolex has made its movements in Bienne. In recent years, it built a giant manufacturing complex on the outskirts of the city. It is literally Bienne's biggest thing, and its most guarded secret, the Fort Knox of the Swiss watch industry, shrouded in the aura of Rolex's unique mystery and mystique. Four years ago, *WatchTime* was one of the first publications allowed to see Rolex's trio of factories in the Geneva area. Some months afterward, I delicately broached the subject of perhaps seeing Rolex Bienne. Rolex's polite communications director at the time became uncharacteristically curt: "Don't even think about it," she said in so many words.

I did, though. Over the years, on countless train rides through Bienne, I peered out the window at the sprawling complex of gray stone buildings with the yellow crown on the top and wondered "What's in there?"

Well, now we know. In February, senior editor Norma Buchanan and I spent a fascinating afternoon on a tour of the facility conducted by Rolex executives. You get a full account in Buchanan's cover story "Inside Rolex Bienne." It is, in effect, a sequel to her "Inside Rolex" article that appeared in the August 2006 issue.

The backstory is this. In December Buchanan and I, a wife-and-husband team, organized a reporting week in Switzerland that had us in Bienne for a few days. On a lark, I decided to raise the subject of a Rolex *manufacture* visit with executives at Rolex USA. I made a formal request in writing. They passed it on to Rolex Geneva. It made its way up the hierarchy and, *mirabile dictu,* the watch gods smiled: Rolex said yes.

So it was that we found ourselves one rainy Thursday afternoon in the spacious reception area of Manufacture des Montres Rolex SA. As befits a firm whose symbol is a crown, we received a royal welcome. At 2 pm sharp, a six-person delegation, led by the *manufacture's* director Raymond Kerrison, arrived to greet us. We were escorted into a large auditorium for a formal welcome speech and a video. After that, the entire group accompanied us around the facility as we witnessed the various steps in the production of a Daytona movement. Two of Rolex's technical stars, François Paschoud of Rolex Bienne and Jacques Baur of Rolex Geneva, took turns explaining the production procedures. At each stop, Rolex watchmakers and technicians awaited us and assisted with the demonstrations. As in Rolex Geneva, there were wonders that in all my years of factory touring I had never seen before. I hope you enjoy Buchanan's story; needless to say, I sure did. It begins on page 104.

Joe Thompson
Editor-in-Chief

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ON THE COVER: The new Rolex Submariner. Photo by Nik Schölzel

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WatchTime

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FOUNDED IN 1755, ON AN ISLAND IN LAKE GENEVA. AND STILL THERE.

17th of September 1755. In the offices of the solicitor Mr. Choisy, a young Master Watchmaker from Geneva named Jean-Marc Vacheron is about to hire his first apprentice. This agreement is the first known reference to the founding watchmaker of a prestigious dynasty and it represents the establishment of Vacheron Constantin, the oldest watchmaking manufacturer in the world in continuous operation.

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> *"THE MARKUP ON QUALITY MECHANICAL TIMEPIECES IS COST RECOVERY. THE COST OF PROTOTYPING, TESTING AND RESEARCH IS ENORMOUS."*

"CNC mills cost a huge amount of money."

WatchTime welcomes correspondence from readers. Send comments to editor-in-chief Joe Thompson at 274 Madison Avenue, Suite 705, New York, NY 10016 or via e-mail to jthompson@watchtime.com. Please include your full name, city and state, and country (if outside the United States). Letters may be edited for length or clarity. Due to the volume of correspondence, WatchTime cannot acknowledge all the letters it receives. However, each one is read in full.

TIRADE OF MISCONCEPTIONS

I had a good laugh reading the letter headlined "Too Easy Money" (Readers' Forum, April 2010), as I am sure a lot of other insiders and professionals have had reading this huge tirade of misconceptions about what goes into the manufacture of quality mechanical timepieces. There is a huge initial startup cost that is soaked up by units produced/units sold. The case work in itself is enormously expensive; this is why some companies outsource it. The mark-up is what it is, cost recovery. The cost of prototyping, testing and research is enormous. The lathes/CNC mills capable of cutting to these incredible tolerances cost a huge amount of money, which is why a huge percentage of companies were buying movements from the Swatch Group (ETA). Now, if movements and machining are so cheap, why aren't more companies making their own product?

[It is true that in recent years] tons of companies exploded into being and stamped "Swiss made" on their dials, but many were low quality. Yes, there were companies that smelled the money and tried to cash in. This is why ETA trimmed back third-party recipients.

As for watchmakers and their "menial handiwork," a Swiss manufacturer will have skilled technicians who go through a number of years working as apprentices and then go to a two-year institution to complete their training. As a watchmaker, someone who took the time and the initiative to go to school and buy my own tools, I can tell you my function is to be the custodian and caretaker of the physical items that make up a family's tradition. I own several watches that belonged to my grandfather and my father. I personally know what it is like to have something worth holding onto and the amount of love and care that is needed to do that kind of "menial handiwork." Even at my level of "menial handiwork" I have roughly $50,000 invested in training and tools. The guys who have made a name for themselves and who head up brands and design new movements are in a class of their own. They are the artisans of our time, modern day Da Vincis in their own right. I was hoping that *WatchTime*, as a publication with many employees in the know, would shut the writer down by offering a scathing reply. Alas, I was disappointed in your publication this one time.

Steve Clark
Via email

STICKER SHOCK

For some time now I've been reading countless articles about how the watch industry has declined and how export to the U.S. is the worst and now at 1998 levels. I don't understand how most major brands can justify the continuous price increases. I am an avid Rolex collector (among other brands) and have since discontinued buying them due to their continued hikes. As our economy tightens, these luxury items have hit new highs in terms of price. I had every intention of purchasing two or three new models this year, but won't, due to these crazy increases. I believe people would purchase more luxury watches if they didn't get "sticker shock" when they see a higher price on the same model they looked at a year and a half ago.

Mike Hodges
Bentonville, AR

ANSWER TIME

In response to your reader asking about his Butex watch ("Question Time," Last Minute, February 2010), please direct him to the following link: www.starck-uhren.de/bwc_en. Butex was manufactured by the Buttes Watch Co. (Swiss), which was integrated into Maddox AG Co. (German) in 1999.

Federico Schlager
Thalwil, Switzerland

The Butex Watch Co., today known as BWC, is still in operation. It was founded in 1924 by Arthur Charlet, in his birthplace, Buttes, Switzerland, in Canton Neuchâtel. I have a Butex from 1950, a wedding gift from my mom to my dad. It was recently serviced and should last for years to come.

Larry Pyykko
Via Email

So striking, no one will notice the seaweed between your teeth.

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"Can I help you?"

Aquatimer Chronograph. Ref. 3767: Turning up at a party in your diving suit? No problem with this watch. The rugged stainless-steel case and the external rotating bezel can be relied on to attract glances all round. And if that is not fascinating enough, simply mention the self-winding mechanical chronograph movement inside. And don't forget: it's probably better to take off your fins before hitting the dance floor. **IWC. Engineered for men.**

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Down Time

World watch production fell below a billion units in 2009 for the first time since the early 1990s.

The recession took its toll on world watch production last year, pushing it down 20 percent, to 865 million watches. Production had already been declining by about 5 percent annually for the prior several years. Last year's sharp drop, however, brought annual watch production below the one-billion-unit mark for the first time in nearly two decades.

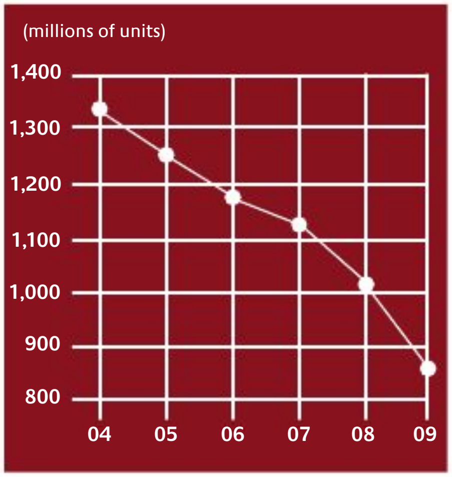
Since reaching a record 1.34 billion units in 2004, annual global watch production has fallen by one-third over the past five years. The figures are estimates by the Japan Clock & Watch Association; there is no official data on world watch production. The JCWA data includes production of complete watches and watch movements sold to third parties for assembly into complete watches.

JCWA does not analyze the data. Some watch observers attribute the steady decline in watch production over the second half of the decade to diminished demand because of the global popularity of cell phones. Because cell phones display the time, they have replaced wristwatches as timekeepers for many people, particularly young people.

Producing analog quartz watches at Citizen

Shrinking Output

World Watch Production



Source: Japan Clock & Watch Association

World watch production by type

(millions of units)

	2005	2006	2007	2008	2009
Analog quartz	1,030	990	930	877	695
Digital quartz	200	179	183	180	151
Mechanical	20	21	22	23	1
Total	1,250	1,190	1,135	1,080	865

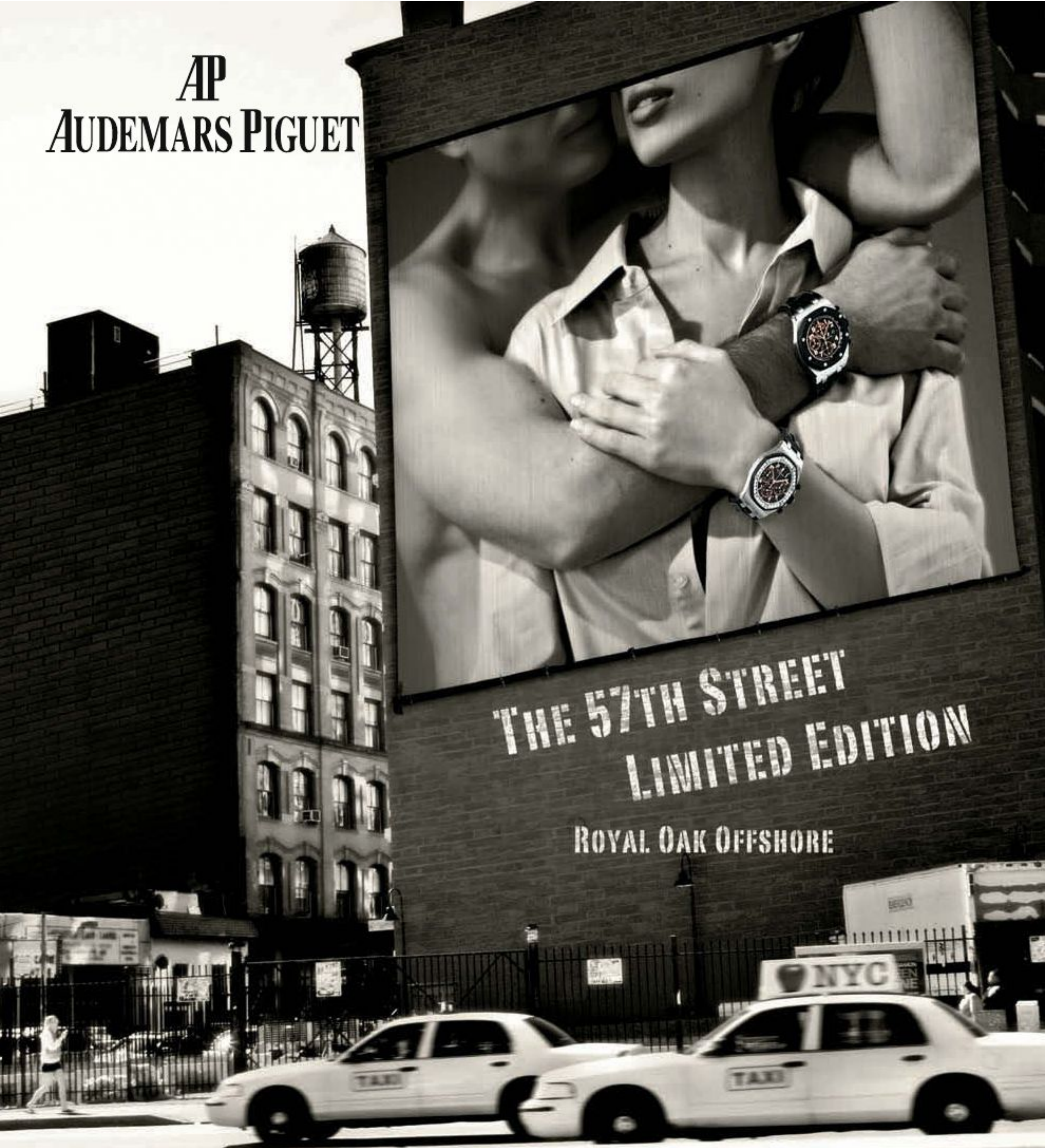
Source: Japan Clock & Watch Association

Eighty percent of the watches made last year, 695 million pieces, were analog quartz models. Digital watches accounted for 18 percent of the total, or 151 million watches, and mechanical models for 2 percent, or 19 million. In recent years, mechanicals are the only type of watch whose numbers have been rising: from 2005 to 2008, mechanical-watch production grew by a total of 3 million pieces. Even they didn't stand up to the recession, though: last year mechanical-watch production fell by 17 percent.

Shipments of Japanese-made watches declined by about the same portion as did world-watch production, dropping by 19 percent, to 56.7 million pieces. The JCWA includes in these figures watches made in any country by a Japan-based company, and counts only complete watches, not movements. The value of these watches declined 23 percent to 151.2 billion yen ($1.6 billion). Analog quartz models accounted for 68 percent of the total in unit terms and 75 percent in value. For digital watches, the figures were 27 percent in units and 14 percent in value; and for mechanical ones, 5 percent in units and 11 percent in value. North America bought 15 percent of Japanese watches exported last year in unit terms and 19 percent in value terms.

In addition to complete watches, Japanese companies (primarily Citizen and Seiko) produced 486.3 million movements in 2009 that they sold to third parties. The combined total of Japan's production of watches and movements last year was 543 million units. That amounts to nearly two-thirds, or 62.7 percent of the world's total watch and movement output.

Swiss watch production also declined in 2009. The Federation of the Swiss Watch Industry reported that Switzerland exported 21.7 million finished watches last year, 4.4 million fewer than in 2008, a drop of 17 percent. (Switzerland produces an additional 1.4 million watches annually for its domestic market.) The export value was 12.3 billion Swiss francs ($11.4 billion), a drop of 22.3 percent from the previous year.



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Bond Watch Bonanza

Ian Fleming's Rolex 1016 Explorer

Omega's "Casino Royale" Planet Ocean watch

A collection of James Bond-related watches and memorabilia will go on display in June at the National Watch & Clock Museum in Columbia, PA. The highlight of the exhibit, called "Bond Watches, James Bond Watches," is the Rolex 1016 Explorer owned by the British writer Ian Fleming, creator of the James Bond character. The watch was the inspiration for the Rolex watch Bond wears in the novel, *On Her Majesty's Secret Service*.

"It is the first time since Ian Fleming was alive that his Rolex 1016 Explorer, and the original manuscript in which he described it for the first time in detail as the personal wristwatch of James Bond, will be together," says Dell Deaton, guest curator of the exhibition. Deaton is a James Bond expert and creator of the Web site, www.jamesbondwatches.com.

In addition to Fleming's Rolex Explorer, "representative examples of all known brands featured in Eon Productions' 007 films will be shown," Deaton says. These include a Breitling Top Time similar to the one worn by Sean Connery as James Bond in *Thunderball,* a Hamilton Pulsar LED similar to the one worn by Roger Moore in *Live and Let Die,* the TAG Heuer Professional Night Diver similar to the one worn by Timothy Dalton in *The Living Daylights,* an Omega Seamaster similar to the one worn by Pierce Brosnan in *GoldenEye,* as well as other models similar to the ones that appeared in Bond movies. There will also be James Bond-related licensed watches, such as the Swatch Villains collection, Omega's Casino Royale Seamaster Planet Ocean Big Size, and a limited edition Fossil watch.

Among the James Bond memorabilia are several original manuscripts, papers and author's copies of Fleming's Bond books. These appear by special arrangement with Indiana University's Lilly Library. There will also be movie posters, props, and print advertisements associated with James Bond watches. The exhibit is open to the public and runs from June 18, 2010 through April 30, 2011.

Watch lovers will also be interested in another exhibit at the museum running through December 2010. "Grand Complication, Art of the Watchmaker" displays a number of grand complication watches in the museum's collection. On display are pieces by watchmaking legends Abraham-Louis Breguet and Thomas Tompion, and the contemporary British watchmaker Roger Smith, represented by his one-of-a-kind No. 2 pocketwatch. Also on exhibit are modern wristwatches by Gallet, Ulysse Nardin and Omega.

The museum is operated by the National Association of Watch and Clock Collectors, which is headquartered in Columbia. For more information, go to www.nawcc.org.

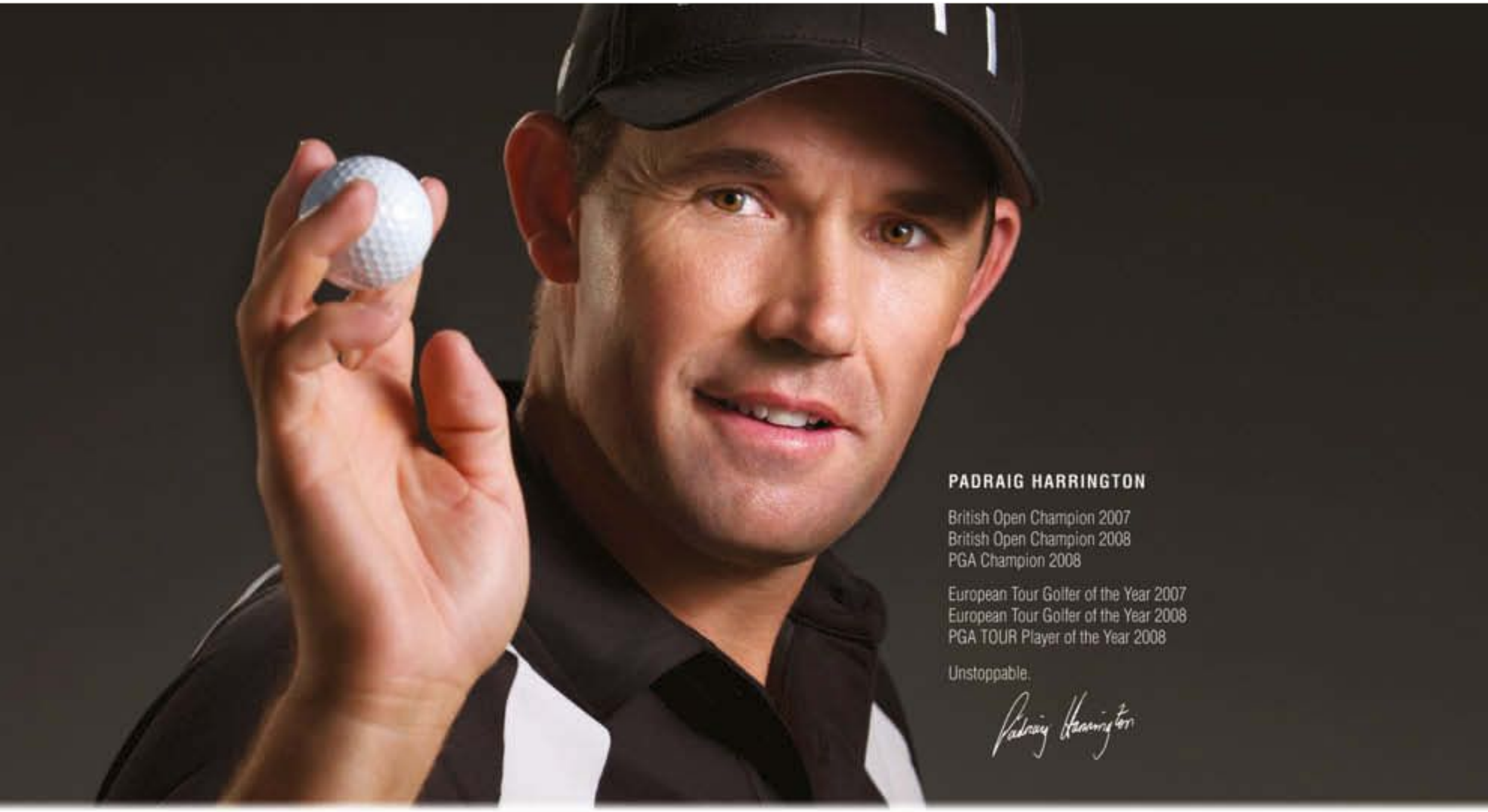
How many clocks, watches, tools and other time-related items are in the collection of the National Watch & Clock Museum in Columbia, PA?

12,000. That's up from 1,000 when the museum opened in 1977.

On Our Web Site

Go to www.watchtime.com to see these and many other stories:

- **Baselworld watches:** Mike Disher and Mark Bernardo offer additional coverage of new watches at Baselworld.
- **2009 financial results:** Joe Thompson reports on full-year results for the Swatch Group, LVMH, Bulgari, Movado, Gucci, Fossil, and Hermès.
- **Grand plans:** This year Seiko will sell Grand Seiko watches in the U.S. and other international markets for the first time.
- **Name that watch:** Online editor Mike Disher cropped images of 15 well-known watches to show just a portion of the dial and case. Can you identify the watches?
- **Time Test:** Take *WatchTime* quiz queen Norma Buchanan's test on the various watch quality seals and certificates.



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Correction

The article "China to the Rescue" in the March-April issue featured a photograph of a watch identified as Vacheron Constantin's new Patrimony Traditionnelle Caliber 2755, referred to in the story. Due to an editing error, the watch shown is not the Caliber 2755, shown here, but the new Patrimony Traditionnelle Caliber 2253. *WatchTime* regrets the error.

Ranking the Rich

Hayek

Forbes magazine's latest list of the world's billionaires, in the March 29, 2010 issue, contains a handful of people with connections — some close, some less so — to the watch business.

Topping the list, in terms of percentage of net worth derived from watches, is Swatch Group Chairman **Nicolas G. Hayek Sr.** He ranks number 232 on the list; his net worth is given as $3.9 billion.

Johann Rupert, the Richemont Group's executive chairman and CEO, ranked 421, with a net worth of $2.3 billion. Richemont owns 12 watch and watch-and-jewelry brands, including Cartier, Vacheron Constantin, Jaeger-LeCoultre, Panerai, and IWC Schaffhausen.

Bernard Arnault, chairman of LVMH, the world's biggest luxury-goods company, ranks an amazing number seven and is the richest European on the list. According to *Forbes,* he has $27.5 billion (an $11 billion increase over last year). LVMH owns TAG Heuer, Hublot, Zenith and Christian Dior.

Ralph Lauren, who has a watchmaking joint venture with Richemont, ranks 173. He has $4.6 billion.

Alain and Gerard Wertheimer, owners of Chanel, which makes watches under its own brand and also owns a share in Bell & Ross, rank 93, with $7.5 billion.

PPR founder **François Pinault** and his family rank 77, with $8.7 billion. PPR owns the Gucci Group, along with a minority share in Girard-Perregaux.

Esther Grether, who is on the board of the Swatch Group, and, as of Dec. 31, owned nearly 11.6 million shares in the company, ranks 655. She and her family are worth $1.5 billion, according to *Forbes*. Most of her wealth comes from her art collection, but her Swatch Group shares, as of mid-April, were worth $660 million.

Rupert

Platt

Perrin

Cologni

Richemont Changes the Guard

Johann Rupert, executive chairman of the Richemont Group, has taken on the additional post of chief executive officer at the company. That job had been held by **Norbert Platt,** who resigned effective March 31. He was named to the CEO post in 2004. Platt will remain on the company's board and will act as an advisor to Richemont. **Richard Lepeu,** who had been the group's finance director, has been named deputy chief executive officer, and **Lord Renwick of Clifton** (a former British ambassador to the United States) has been named lead independent director. Both appointments were a result of Rupert's added responsibilities.

In addition, **Alain Dominique Perrin** and **Franco Cologni** have both given up their direct executive responsibilities effective March 31. Perrin, who joined Richemont's Cartier division in 1969 and orchestrated the brand's growth to powerhouse status, had served as the Richemont board's executive director since 2003. He will continue as a non-executive director. Cologni, a board member and advisor to Rupert in his role as executive chairman, will also remain on the board as a non-executive director.

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2009 Watch Advertising Down 34%

Cost cutting clobbered U.S. watch advertising in 2009. Watch company ad spending in the United States, which reached nearly $400 million in 2007, fell to $250.3 million last year, down 34 percent from 2008. The data is an estimate by TNS Media Intelligence, which tracks brand advertising in the U.S.

The drop comes as no surprise and is in line with the severe slump in U.S. watch sales in 2009. Swiss watch exports to the United States, for example, fell by 38 percent last year.

The vast majority of watch companies cut ad spending. Traditional big spender **TAG Heuer** led the way. TAG, which spent $26 million on ads in 2008, trimmed that figure by $18 million in 2009 to just under $8 million. Former big spenders **Seiko** ($8.84 million in '08) and **Gucci** ($7.74 million in '08) slid to the bottom of the chart last year. TNS estimated Seiko's ad spend at $100,000 and Gucci's at zero.

A Seiko executive told *WatchTime* the lower figure reflects a shift in strategy to more regional co-op advertising. A Gucci executive said the TNS estimate is incorrect. However, he confirmed that Gucci had shifted marketing money away from glossy magazines to its Web site and social media.

The 20009 spending list was loaded with signs of tougher times for timepieces. **Tissot** is a good example. It spent in 2009 exactly the same amount as it spent in 2008, $2.69 million. That amount placed it at #34 in the rankings in 2008 but at #18 in 2009. To make the top 25 list in 2008, you had to spend more than $3 million. A year later, fewer than $2 million would do it.

As usual, **Rolex** was the top U.S. watch advertiser by far in 2009 at $48.10 million. That figure is twice as much as the second biggest advertiser and nearly three times as much as the #3 advertiser.

Breitling remained securely in the #2 spot, spending $24.34 million, down $4.5 million from 2008.

Citizen, with an ad outlay exceeding $17 million, moved into the #3 spot vacated by TAG Heuer. TAG fell to #8.

Bulova was one of just six brands in the Top 25 list to increase spending last year. It upped the $12 million it spent in 2008 by more than $2 million last year and jumped from #8 to #4 in the rankings.

Bell & Ross also increased its ad spending last year and continued to catapult up the chart. B&R cracked the Top 25 list for the first time in 2008, coming in at #15. In 2009, it cracked the Top 10, ranking #9 with an outlay of $5.61 million.

One notable newcomer to the list is **Ralph Lauren.** The firm introduced its first watch collection in 2009; the $2.24 million it spent on watch advertising put it at #22 on the list. Other brands that upped ad spending in the down market were **Timex** (+$2.87 million to jump from #36 to #11), **Fossil** (+$1.3 million to move to #23) and **Anne Klein** (+$340,000 to move from #53 to #25).

Patek Philippe, as usual, was the top *haute-horlogerie*-brand spender ($5.42 million, #10). **Dolce & Gabbana** was the biggest fashion brand advertiser ($3.67 million, #12).

Eight brands dropped off the Top 25 list last year: **Seiko, Gucci, IWC, Ebel, Jacob & Co, Jaeger-LeCoultre, Raymond Weil,** and **Baume & Mercier**. The eight new brands on the Top 25 list were **Timex, Tissot, Ball Watch, Victorinox, Ralph Lauren, Fossil, Piaget**, and **Anne Klein.**

Joe Thompson

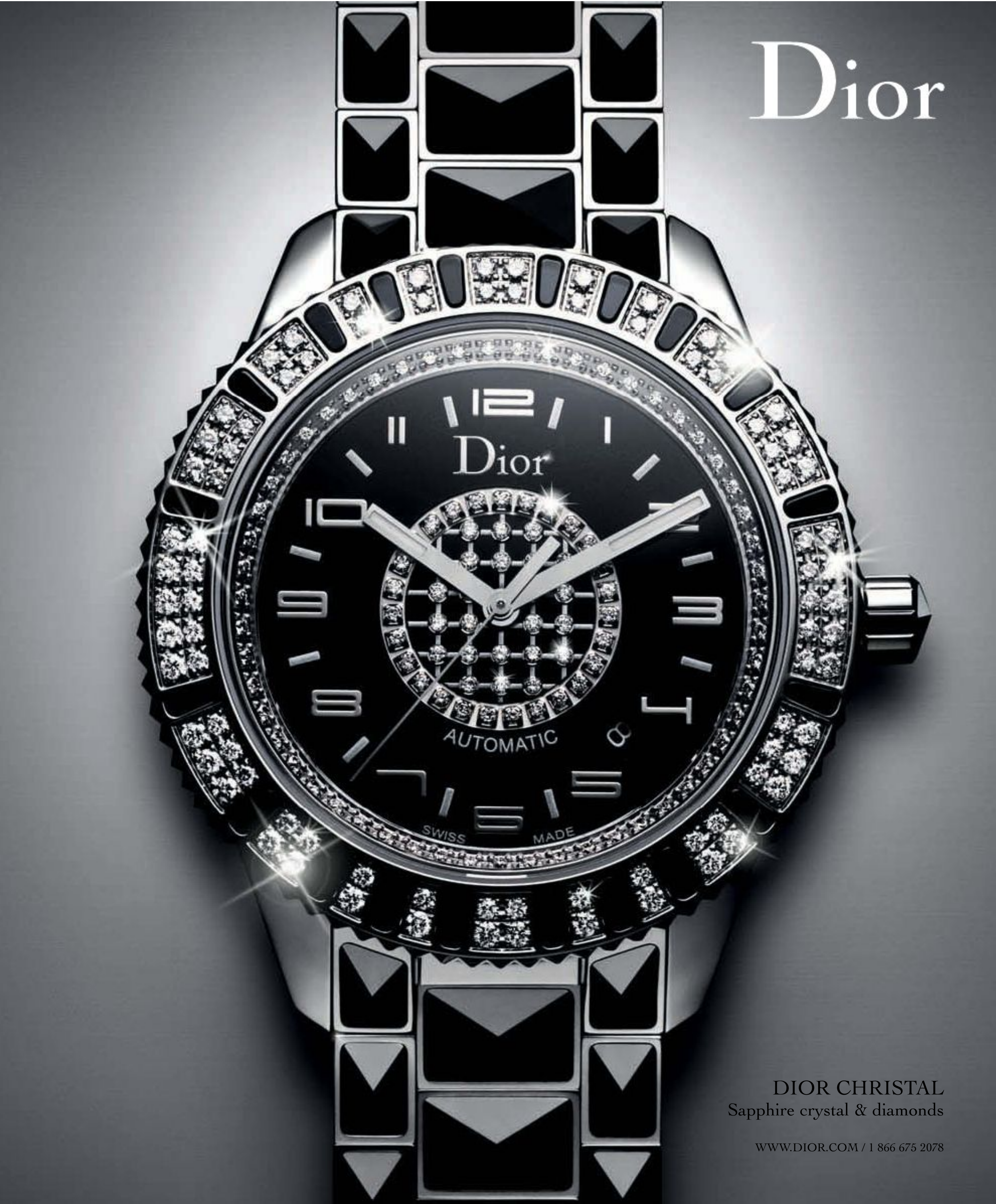
Top 25 Watch Advertisers

U.S. market, 2009

RANK	BRAND	AMOUNT ($ million)
1.	Rolex	48.10
2.	Breitling	24.34
3.	Citizen	17.06
4.	Bulova	14.12
5.	Cartier	13.65
6.	Omega	10.03
7.	Movado	8.03
8.	TAG Heuer	7.86
9.	Bell & Ross	5.61
10.	Patek Philippe	5.42
11.	Timex	5.37
12.	Dolce & Gabbana	3.67
13.	Chanel	3.60
14.	Rado	3.08
15.	Hublot	2.90
16.	Ulysse Nardin	2.75
17.	Breguet	2.72
18.	Tissot	2.69
19.	Ball Watch	2.55
20.	Longines	2.44
21.	Victorinox	2.35
22.	Ralph Lauren	2.24
23.	Fossil	2.16
24.	Piaget	1.85
25.	Anne Klein	1.76

Source: TNS Media Intelligence

COMING SOON, A BIGGER BASELWORLD: The image at left shows how the Baselworld complex will look in 2013 after a major renovation undertaken between the 2012 and 2013 shows. MCH Group Ltd., the company that owns Baselworld, will spend 430 million Swiss francs ($398 million) to demolish and rebuild Hall 3. It is directly across the square from Hall 1, where most of the watch brands are located. The renovation will increase the total exhibition area of the show to 141,000 square meters. To accommodate construction, the 2013 show will be later than usual, April 25 to May 2.



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IBG 2010 Season Begins

The annual watch fairs in Basel and Geneva are the watch-world equivalents of the Super Bowl. Starting in June, U.S. watch fans can get an insider's view of the new watches introduced there. *WatchTime*, in conjunction with watch expert Jeff Kingston, is once again holding its traveling "Inside Basel/Geneva" events, which highlight the new watches unveiled at Baselworld and at Geneva's Salon International de la Haute Horlogerie. The events, to be held in six cities, include a 90-minute multimedia presentation by Kingston. They also feature a session in which attendees can see and touch watches from major watch brands and talk to those brands' representatives.

Above: Jeff Kingston.
Left and below: scenes from the IBG events.

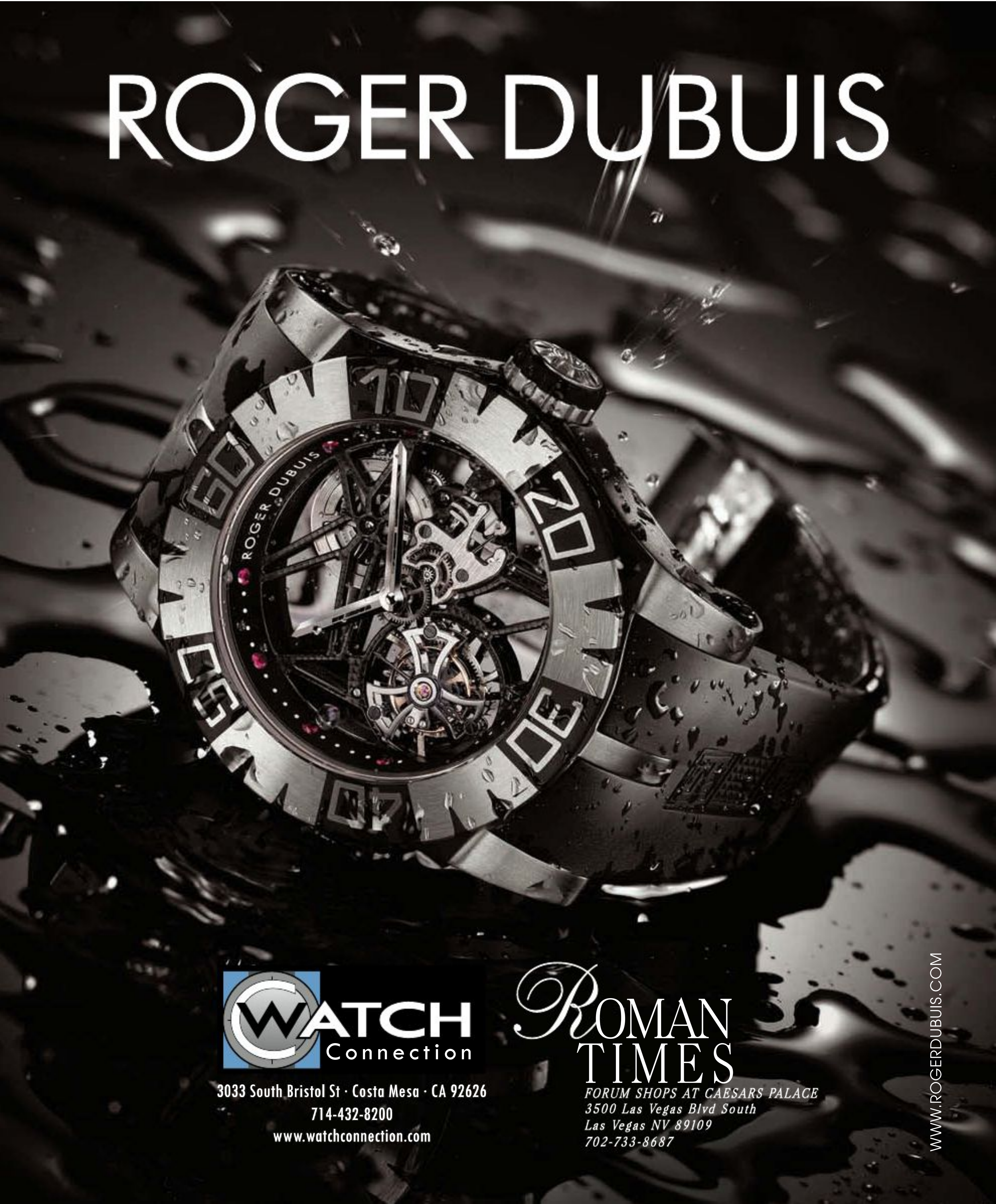
The presentation, which takes place during a three-course dinner, consists of a slideshow of new watches from more than 40 brands, accompanied by Kingston's commentary and interspersed with video clips of interviews Kingston did with watch executives and watchmakers at the shows.

The "live" portion of the event takes place at a two-hour cocktail reception before the dinner. During it, attendees are able not just to scrutinize the watches on display but to mingle with other watch fans. Charles Tearle, watch expert at the watch-auction house Antiquorum Auctioneers, and an appraiser on the television show "Antiques Roadshow," will also be on hand to talk with attendees.

The participating brands vary from event to event, but the following brands are scheduled to be at some or all of them: A. Lange & Söhne, Armin Strom, Blancpain, Carl F. Bucherer, Cartier, Girard-Perregaux, IWC Schaffhausen, Jean Dunand, Maîtres du Temps, Max Büsser & Friends, Montblanc, Panerai, Parmigiani, Piaget, Speake-Marin, Vacheron Constantin and Zenith. The list of specific brands participating at each location is posted on the *WatchTime* Web site. Go to www.watchtime.com. Click on the WT EVENTS tab on the home page, then click on IBG 2010 SCHEDULE.

The first event will be held June 22 in San Francisco, followed, on June 24, by Los Angeles. Next is Miami, on July 14. There will be three events in September, on the 14th, in New York; the 16th, in Philadelphia; and on the 29th, in Chicago. Tickets to all the events are $99, except for New York, which is $119.

Tickets will be sold on a first-come, first-served basis. To register, visit www.watchtime.com and click on the banner for "Inside Basel/Geneva 2010." Or call 800-596-5898 during business hours, Eastern time. If you have questions, you can e-mail them to *WatchTime's* events coordinator Amy Bernstein at abernstein@watchtime.com. ○



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Does Timex still manufacture its watches in the United States?

Made in America

Test your knowledge of U.S. watch companies past and present.

BY NORMA BUCHANAN

1. The Yankee watch, made by Timex precursor Waterbury Clock Co., was famous because it:
A. Was the first U.S.-made wristwatch
B. Cost only one dollar
C. Contained the world's first pin-lever escapement
D. Was presented to members of the Yankees baseball team after their 1928 World Series victory

2. Which of the following statements about Timex is NOT true?
A. It no longer manufactures watches in the United States.
B. It was once named U.S. Time.
C. It is headquartered in Little Rock, AR.
D. None of the above. All the statements are true.

3. In 1880, the U.S. importer of the Swiss brand Longines founded a new brand tailored specifically to the U.S. market. What was it?
A. Benrus
B. Gruen
C. Hampden
D. Wittnauer

4. Who was Aaron Dennison?
A. The man responsible for establishing Standard Time in the United States
B. The co-founder of the first U.S. watch factory
C. The founder of Elgin Watch Co.
D. The Ingersoll CEO who launched the Mickey Mouse watch

5. What company makes a watch called "Spirit of America"?
A. D. Freemont
B. Hamilton
C. Bulova
D. Kobold

6. A demonstration by Waltham at the Philadelphia Centennial Exposition of 1876 shocked the Swiss watch industry. Why?
A. It showed an American company making better watches, at a lower cost, than the Swiss were able to at that time.
B. It called into question the precision of the Swiss lever escapement.
C. It showed Waltham's U.S.-made machines working far better than its imported Swiss ones.
D. It showed that Waltham's mass-production methods were actually less efficient than Swiss manual production.

7. Where is the once-American Waltham watch company based today?
A. Hong Kong
B. Switzerland
C. Qatar
D. Singapore

8. What American company made a watch called the "Curvex"?
A. Illinois
B. E. Howard
C. Elgin
D. Gruen

9. Who is Roland Murphy?
A. A U.S. watchmaker with his own watch brand
B. The founder of Hamilton
C. The Timex spokesman who succeeded John Cameron Swayze
D. Designer of the Bulova Accutron movement

10. What watch brand is named for the man who developed quality standards for watches used by U.S. railroad employees?
A. Gruen
B. Hamilton
C. Ball
D. Bulova

11. When did Hamilton stop making watch movements at its longtime factory in Lancaster, PA?
A. 1941
B. 1957
C. 1969
D. 1976

12. What company owns the Elgin watch brand?
A. Swatch Group
B. Armitron
C. Fossil
D. MZ Berger

13. The American brand Bulova achieved which world's first(s)?
A. First battery-powered watch
B. First TV commercial
C. First motion-powered quartz watch
D. A and B

14. The American brand Hamilton achieved which world's first(s)?
A. First battery-powered watch
B. First digital watch
C. First tuning-fork watch
D. A and B

FOR THE ANSWERS, SEE PAGE 36.

JB 1735

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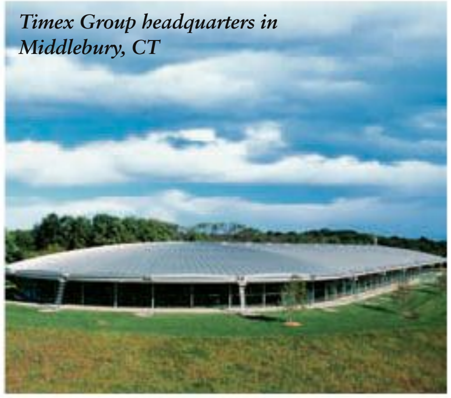
Answers:

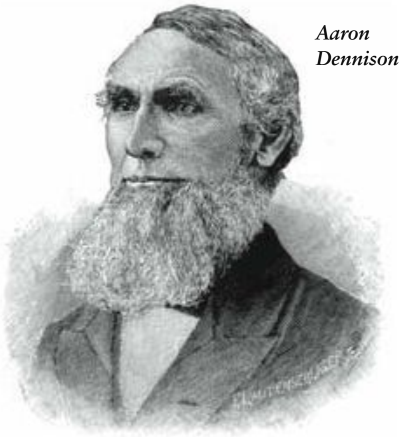
1. B. The Yankee, manufactured by Waterbury Clock Co. for Robt. H. Ingersoll & Bro., was a so-called "dollar" watch, a genre of inexpensive watches that contained pin-lever movements, invented in the 1860s by the Swiss watchmaker Georges-Frédéric Roskopf. Launched in 1896, the Yankee was initially conceived as part of a collection of one-dollar novelty items that also included a typewriter, sewing machine and camera. The watch was a huge success. By 1900, Ingersoll had sold six million Yankee watches. The company advertised the watch with the slogan "The watch that made the dollar famous." Mark Twain bought at least two of them.


Timex Group headquarters in Middlebury, CT

2. C. The Timex Group is headquartered in Middlebury, CT. Until 2001 Timex had a factory in Little Rock, AR, and still maintains a distribution and repair facility there. All its production and assembly now takes place overseas. Timex was named "U.S. Time" until 1969, when it became Timex Corp.

3. D. Swiss-born Albert Wittnauer (1856-1908) emigrated to the U.S. in 1872 to work for his brother-in-law, J. Eugene Robert, in the latter's New York import office for Longines. Wittnauer got many requests from his American retail customers for a watch line that was less expensive than Longines, but similar to it. He decided to launch his own brand especially for the U.S. market. Wittnauer set up an assembly and finishing plant in Geneva, which cased movements that Wittnauer bought from Swiss suppliers. In 1936, the company passed out of the Wittnauer family's hands and was renamed Longines-Wittnauer (it had continued to sell Longines watches alongside the Wittnauer brand). Today, Wittnauer is owned by Bulova Corp., which acquired it in 2001. Bulova is owned by Citizen Watch Co.

4. B. Aaron Dennison was a watchmaker, born in Maine in 1812, who, with Edward Howard, opened the country's first watch factory, in 1850. The factory, in Waltham, MA, became known after several name changes as Waltham Watch Co. At the factory, Dennison established a system of mass-production of interchangeable parts. It was based on the system Eli Whitney had developed for manufacturing guns, and was the reason the American watch industry (other U.S. watch companies adopted the method) was able to make high-quality, relatively inexpensive watches during and after the Civil War. This mechanized mass-production of uniform parts came to be called the "American system of manufacturing." Dennison is known as "the father of the American watch industry" both because he set up the first factory and because he pioneered the system that would become the backbone of U.S. watchmaking.


Aaron Dennison

Kobold's Spirit of America watch

5. D. The "Spirit of America" is a two-handed automatic launched in 2008 to mark the 10th anniversary of Kobold Watch Co., based in Pittsburgh. Company owner Michael Kobold says 87 percent of its parts, including 100 percent of its case, are manufactured in the United States. Its movement is based on an old German movement called a Forster 197. The 2008 Spirit of America had a precursor: a limited-edition Spirit of America that Kobold launched in 2006 to help raise money for a charity benefiting victims of the Sept. 11, 2001 terror attacks.

6. A. At the exposition, Waltham demonstrated how it made very high-quality watches using mass-production techniques. One witness was the Swiss watch manufacturer Edouard Favre-Perret, who was stunned at Waltham's watchmaking prowess. He, like most Swiss, had assumed that Switzerland's watches were head and shoulders above those made in America. He gave a speech in La Chaux-de-Fonds to members of the Swiss industry in which he admonished his countrymen, "Had the Philadelphia Exposition taken place five years later, we would have been totally annihilated without knowing how we received the terrible blow. We have believed ourselves masters of the situation when we really have been on a volcano."

7. B. After myriad ups and downs since its founding in 1850, Waltham (Waltham International SA) is now a Swiss company, based in Marin-Epagnier, and making quartz and mechanical wristwatches and pocketwatches. Its chief market is Japan. The American Waltham company stopped making watches for consumers in 1957. It nonetheless continued to

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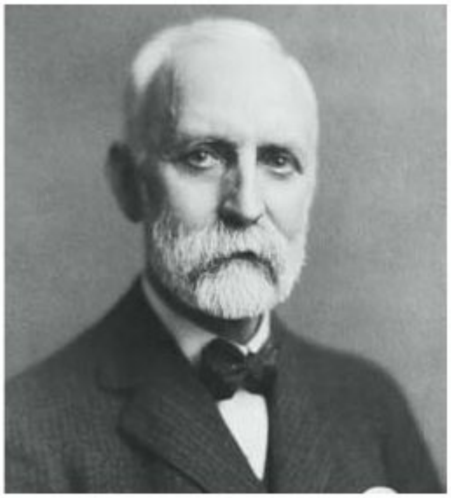
make clocks for airplanes. That business still survives, and is based in Ozark, AL. It's called Waltham Aircraft Clock Corp.

8. D. The Gruen Curvex, launched in 1935, was one of the most famous wristwatches ever made. As its name implies, its case was curved to fit the wrist. It was different than some other curved watches on the market, however, because its movement had been specially designed on two planes so that it would fit the shape of the case. This meant the movement could be bigger and hence more accurate. Gruen was based in Cincinnati and assembled its watches there. It made its movements in its own factory in Bienne and also for a time owned a share in the Bienne firm Aegler SA, movement supplier to Rolex.

9. A. Roland Murphy's brand is RGM. A WOSTEP-trained watchmaker, Murphy, an American, introduced his first watch in 1993 and now makes a wide range of mechanical models, from simple automatics to high complications. One interesting feature of his pieces is their guilloché decoration, which Murphy does himself on his antique rose engine. He also does timepiece restoration. He is based in Mount Joy in Lancaster County, PA.

Roland Murphy

10. C. Ball Watch is named after Webster (Webb) Ball (b. 1847), a Cleveland jewelry-store owner who, right after Standard Time was adopted in 1883, became the first retailer in the country to display the time as indicated by time signals. After a famous train wreck in Kipton, Ohio, in 1891, which occurred because the watch carried by one of the train engineers had stopped for four minutes, undetected, Ball was appointed chief time inspector for the Lake Shore railroad. He set up a system for inspecting railroad watches that was adopted by railroads throughout the country. Webb Ball also marketed watches under his own name. They were made by various companies, including Hamilton.



Webster Ball

11. C. Hamilton announced on Jan. 6, 1969 that it would stop making movements at the factory it had occupied since Hamilton's founding in 1892. Hamilton's president, Richard Blakinger, explained at the time that movement production in Lancaster was no longer profitable. Work that had been done there was transferred to Switzerland, where Hamilton was already making movements at the factory of A. Huguenin Fils, which Hamilton had bought a decade earlier, and at the Buren Watch Co., which Hamilton had bought in 1966. At this time, Hamilton also made movements on St. Croix in the Virgin Islands.

12. D. MZ Berger, based in Long Island City, New York, markets a line of quartz watches under the Elgin name. The company sells several other quartz brands, including Sharp and various licensed brands for children. The original Elgin, founded in 1867 in Elgin, IL, and one of the giants of the U.S. watch industry, went out of business in the 1960s.

13. B. On July 1, 1941, before a baseball game between the Brooklyn Dodgers and the Philadelphia Phillies, Bulova ran a TV spot featuring a map of the United States. In its center was a watch dial labeled "Bulova Watch Time." The map remained on screen for 20 seconds; Bulova paid $9.19 for the air time. This was not the only Bulova advertising "first": in 1926, Bulova aired a radio commercial, the nation's first, which consisted of the announcement, "At the tone, it's 8 p.m., B-U-L-O-V-A, Bulova watch time."

14. D. On Jan. 3, 1957, Hamilton introduced the world's first battery-powered watch, the Hamilton Electric, at a press conference in New York. In doing do, it beat out Elgin, which had also been developing an electric watch but had not yet brought it to market. Hamilton's first electric model, made of gold, sold for $175. In 1972, Hamilton brought out the world's first digital watch, the Pulsar. The company had announced the watch at a press conference two years earlier but had done so prematurely: the watch display, an LED (light-emitting diode) consumed far too much energy. When it was finally perfected, the Pulsar was a runaway success. ○

Photo by Günther Ramm

The Hamilton Pulsar

There are more watch quizzes on our Web site. Go to www.watchtime.com and click "Quizzes & Tests."

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The new Rolls-Royce Ghost offers a spirited driving experience.

The Rolls-Royce Ghost is a dual-personality car. It can be a self-indulgent sit-and-steer sedan with the comforts and luxury standards established by the iconic British brand over a century ago. It's also a real drivers' car, with huge horsepower, dynamic torque, precise handling and superlative suspension that exceeds those of other cramped, two-seat exotic sportscars. I can't recall the last time I've had such a great time driving a car.

At first look, there's no question this is a Rolls-Royce, albeit one 18 inches shorter than the Phantom, the motoring monarch of the highway. The Ghost's profile takes styling cues from the Phantom but is less formal. Think blazer, jeans and loafers rather than a Savile Row suit, tie and brogues.

There's a new and distinctive Rolls-Royce statuesque grille, flanked by Xenon headlights, that defines the look of this luxurious vehicle. The elongated hood is accented with the famous Spirit of Ecstasy (a.k.a. "Flying Lady") hood ornament. This exotic Rolls-Royce symbol rises from its secure area at the touch of a button for all to see. Touch the button again and it retracts back inside, discouraging thieves from removing it when the vehicle is parked. Owners have the option of a matte silver finish for the hood, grille and windshield frame, which adds a bespoke design element.

The new Rolls-Royce Ghost

All the 12 paint colors now offered go through a five-stage process that results in a stimulating, shimmering and seductive depth of color. The "RR" logos on the wheel covers will always remain upright thanks to special poltergeist-like gyros.

The front doors are big enough to make entry into, and exit from, the cockpit area easy and comfortable. The doors have special slots to hold Rolls-Royce umbrellas for driver and passenger. The Ghost's back doors are the signature rear-hinged coach style, which open wide for demure departures and arrivals. Have difficulty closing any of the doors? Push a button for automatic, hands-off closing.

Inside the Ghost there is an elegant array of chrome, wood, leather, wool, cashmere and other materials, working in harmony to create a truly special environment for both driver and passengers. The Ghost has ample head- and legroom with wonderful, adjustable support in both areas.

All wood veneers in the Ghost — dashboard, doors and center console — come from the same log to ensure matching characteristics and are hand-finished for a mirror-like shine that I frankly find a bit too Formica-like. Make mine softer with a matte finish, please.

Other elements of the distinctive, elegant ambiance include frosted lights, special door handles, eyeball air vents, violin switches, a huge navigation screen, and soft-touch, almost eerily iPhone-sensitive buttons. The designers have also paid a good amount of attention to the back seats, where passengers will appreciate the luxurious atmosphere and dual-display entertainment system.

Driving the Ghost quite simply took my breath away. The moment I touched (no need to push) the start button, I felt a tingle. This is the most powerful Rolls-Royce engine ever built (OK, its airplane engines are bigger). The BMW-made engine in the Ghost is a fuel-injected, 6.6-liter, V12 twin turbo, 563-hp engine with — gulp — 575 lbs. of torque at just 1,500 rpm, which can accelerate from zero to 60 mph in 4.8 seconds. That's spine-chillingly fast.

The eight-speed automatic is silky-smooth and, quite properly, very quiet. There are no confusing numbers for shifting gears, just four letters: put it in "D" for the best drive of your life and, of course, "R" for reverse, "N" for neutral and "P" for park. The Ghost has air-springs on all four wheels that made even a 90-degree left turn, at 120 mph, nimble, smooth and effortless. The Ghost is loaded with automatic, intuitive technology for safety and comfort but lacks the annoying interfaces often associated with high-tech applications.

The price for the newest, fastest, most powerful, driveable and inexpensive Rolls ever built? $245,000. That's the good news. The not-so-good news? Prepare to wait a while as the new hand-production line for the Ghost at the Rolls factory in Goodwood, England ramps up to full speed. But the wait will be worth it. A car this close to perfection takes time. ○

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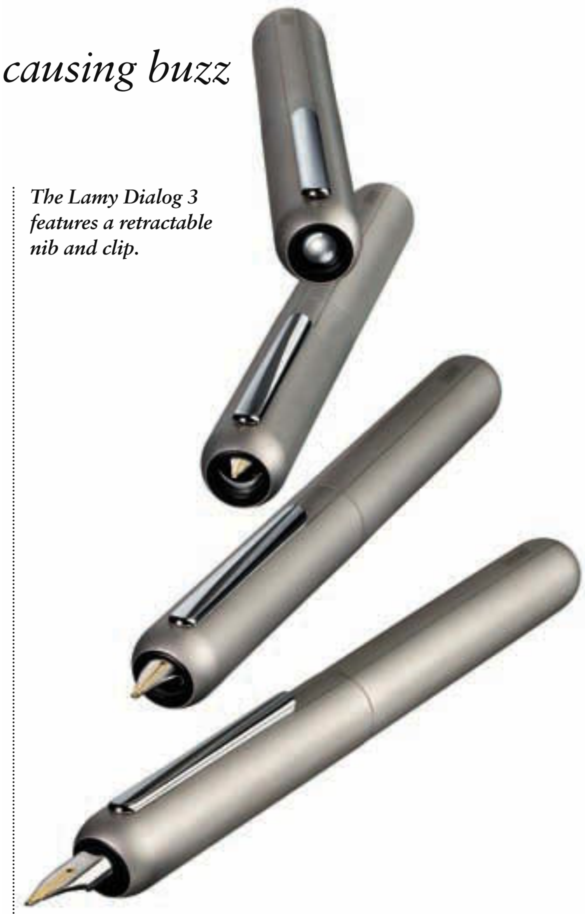
JAN DIVINCENZO

The Dialog Debate

Why the Lamy Dialog 3's unique mix of features is causing buzz



The Lamy Dialog 3 features a retractable nib and clip.

Since 1930, Germany's family-owned pen company, Lamy, has remained true to its Bauhaus aesthetics, functional excellence and accessible pricing, while producing iconic models such as the Lamy Safari and the Lamy 2000. It is a company that pen aficionados respect — though not unconditionally. This year they gave Lamy's latest flagship, the Dialog 3, skeptical reviews on the pen forums. Under debate were the Dialog 3's mechanical complexity (as possibly compromising its robustness), its minimalist look (as too plain) and its maximalist price (if $250 is more than you'd expect to pay for a Lamy). Adding fuel to the debate was Lamy's claim that this was "the first fountain pen with a retractable nib and clip."

While the Dialog 3's claim to primacy is true, it rests neither on the pen's retractable nib nor its retractable clip but on the presence of both at once in a fountain pen. Designed by Franco Clivio and issued in late 2009, it is the third pen (and first fountain pen) in a series ostensibly representing a "dialog" between designer and manufacturer. Its palladium-finished body measures about 14 centimeters with nib retracted, and its two-tone, anodized gold nib (available in extra-fine, fine, medium, and broad, as well as in oblique medium and broad) extends about 1.5 centimeters beyond that. To extend this nib you have to turn the pen along a joint at its center, which moves a ball valve aside at the writing end, allowing the nib to emerge and lowering the clip flush against the body; twisting it in the reverse direction retracts the nib, seals the ball valve, and raises the clip about a millimeter above the body.

Though retractable points and clips appear in ballpoint pens — the Lamy Swift, for instance — they have become quite rare, even as stand-alone features, in fountain pens. Collectors generally refer to pens with retractable nibs as "safety pens," retractability being a feature of the original pens of that style, like Morris W. Moore's "non-leakable" Tourist, issued by the American Fountain Pen Company in the late 19th century. Waterman's Ideal Safety Pen of 1907 featured a retractable nib that employed Francis C. Brown's 1898 patent for a "helical cam," a twist-operated mechanism. So, early in fountain pen history the twist-action retractable was common — until a simpler solution to safety (leakproofness) came along. This was Parker's "blind cap," as featured in the Parker Jack-Knife Safety Pen of 1912. The blind cap was simply a small cap within the larger cap that sealed the nib and feed. By the mid-20th century this effective and economical safety feature became so widespread that the retractable nib almost went extinct, and the term "safety" came to specify this latter, practically obsolete feature.

Paradoxically, retractability has made it into a modern classic: the Pilot Vanishing Point, perhaps the only popular, capless, retractable fountain pen out there. In 1932 La Plume d'Or issued the Pullman and in 1934 Aurora issued the Asterope, both capless retractable pens. While neither went beyond a limited edition, they contained the ingredients of one of the most futuristic pen designs of all time, that of the Pilot Capless (1964), renamed the Vanishing Point in 1973. What, in part, makes the VP modern is an illusion: the clip's position at the writing end of the pen requires the user to hold it by what appears to be the cap. This visual inversion and the VP's rocket-age lines have graced it with perennial cool.

The Dialog 3 is certainly not the first fountain pen to adopt the VP's clip position: Stipula did so in 2005 with its DaVinci model. But it distinguishes itself in several ways: it is twist-operated, it has a retractable clip, and it is conspicuously minimalist. Its combination of mechanical complexity and Bauhaus simplicity will make the Dialog 3 either a collectors' rarity or a timeless classic, depending on how the pen performs — and, of course, how the dialog goes. ○

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RICHARD CARLETON HACKER

Sipping Bourbons

Small-batch and single-barrel bourbons have won over whiskey connoisseurs.

Photo: Richard Carleton Hacker

A bevy of bourbons: Proof on Main, in Louisville, Kentucky, is a bourbon-lover's bar, and stocks almost 50 small-batch bourbons, including rarities such as Johnny Drum Private Stock, Old Pogue Master's Select, Ridgemont Reserve, and Rowan's Creek, among others.

The month of May always reminds me of the Kentucky Derby, one of our few national sporting events to be represented by a cocktail. After all, the Derby means Mint Juleps. However, as any bourbon aficionado knows, the best way to enjoy a Mint Julep is to skip the simple syrup and water, take away the muddled mint, and leave out the ice. If you do this correctly, you will then have a glass of pure, unadulterated bourbon, which is the only way to really appreciate this native American spirit. After all, a premium bourbon, small-batch or otherwise, is really too fine a whiskey to be tainted by outside ingredients.

That was the impetus for Beam's Small Batch Bourbon collection, which started out in 1988 with Booker's, one of the few uncut, unfiltered bourbons on the market, and bottled at anywhere from 121 to 127 proof, depending on when it was "dumped" (an industry term) from the barrel. Its high proof is why Booker's is one of the few bourbons I recommend adding ice to — just a cube, made with distilled water. But four years before Booker's, there was Blanton's, the first single-barrel bourbon in modern times. It was the inspiration of master distiller Elmer T. Lee. Now in his 90s and retired, Lee, along with current master distiller Gary Gayheart, still takes part in selecting the best barrels for each bottling.

Since that time, we have seen a number of classic sipping bourbons emerge, such as Russell's Reserve. Launched in 1999 to honor master distiller Jimmy Russell's 45 years with the Wild Turkey distillery, each 10-year-old barrel is still sampled by Jimmy and his son, associate distiller Eddie Russell, before it is selected for this 101-proof elixir. Jimmy also selects the whiskeys that make up the rich and elegant single-barrel Kentucky Spirit. And every year Julian Van Winkle III comes out with a limited, 3,000-bottle offering of Pappy Van Winkle's Family Reserve 23-Year-Old, which is quickly snapped up by repeat customers. Yes, we now have premium bourbons that are as collectible as they are drinkable.

A classic example is Woodford Reserve Master's Collection, an occasional release of what will eventually be a five-part limited edition that takes one of the whiskey-making elements — grain, water, fermentation, distillation, and wood aging — and tweaks it slightly, according to the inspiration of master distiller Chris Morris. Previously, there had been Four Grain, Sonoma-Cutrer Finish, and Sweet Mash offerings. But the latest, Seasoned Oak Finish, is by far the best. Most bourbon barrels are aged from three to seven months before filling, but for this presentation, Morris has taken custom-made new oak barrels that have been aged for three years, and sealed with heads aged for five years. Into this bespoke oak Morris put triple-distilled seven-year-old Woodford Reserve, and then aged it for an additional eight months. The ultra-aged new oak brought out additional complexities rarely encountered in bourbon, including cinnamon and curry, making this a rarity that will probably never be repeated.

Then there is Michter's 25 Year Old Single Barrel Bourbon, from a distillery name that dates from 1753 and allegedly supplied spirits to Washington's Continental Army, although I doubt it was as smooth and silky as this potion. Slightly headier is the uncut, unfiltered 137.4-proof George T. Stagg 15-Year-Old, full of sweet chocolate, cherries and honey. You might also consider sleuthing out the slightly elusive A.H. Hirsch 16 Year Old, the last of the old, post-Prohibition pot-distilled Pennsylvania bourbons.

And for those post-barbecue moments with friends, I strongly recommend Parker's Heritage Collection "Golden Anniversary," a compilation of bourbons from each of the five decades Parker Beam — a sixth-generation distiller and descendant of Jim Beam — has been master distiller at Heaven Hill. After 50 years, Parker knows where the best barrels are kept and this is evident in the flavors of soft butter, cherries and smoke that swirl in the amber liquid of this one-time offering.

Indeed, we have entered the Age of Fine Sipping Bourbons, and just in time, for they are suitable companions for warm days and cool nights. ○

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MARK BERNARDO

The Art of the Vitola

A vertical tasting reveals flavor nuances in different sizes of the same cigar.

If you have a favorite watch style — round, tonneau or square; slim and elegant or bulky and sporty — you have something in common with cigar lovers, many of whom express preferences for a specific size and shape (i.e., robusto, toro, Churchill, torpedo), what the Cubans call a vitola. Like watch sizes and styles, cigar vitolas go in and out of fashion over the years; the traditional panatela and Lonsdale are scarce nowadays, while the classic perfecto, all but forgotten after the Cuban embargo, is now popular again.

How does a cigar's vitola affect its flavor? If it's the same tobacco blend in a different size and shape, shouldn't all provide a similar smoking experience, just of different durations? Obviously, consistency is of paramount importance to cigar blenders. However, giving each vitola its own distinctive character is also important, and the size and shape affects many factors that influence taste: how much tobacco is used, how much smoke it generates, how long it takes to finish. Champagne from a flute tastes different than Champagne from a paper cup, and tobacco leaves also offer the palate different experiences in different packages.

Perhaps the best way to experience the nuances of a cigar in its various forms is to do what our wine-connoisseur brethren call a vertical tasting. For this one, I chose General Cigar's Cohiba Puro Dominicana, the first Cohiba cigar made exclusively from Dominican tobacco. It is offered in four vitolas: Corona (5 1/2" length by 42 ring gauge); Robusto (5 1/2" x 50); Toro (6" x 54); and Churchill (7" x 49).

I started with the corona, the smallest in both length and girth. Those who avoid coronas cite their size as a disadvantage: too short a smoke to develop big flavors or to challenge the palate with complexity. This assessment is not entirely without merit: the thinner roll makes the flavors more one-dimensional, the finish somewhat short, and the amount of smoke light. However, the corona is an excellent on-the-go smoke for when you don't have time for something larger. Flavorwise, the Cohiba Corona is earthy and peppery, with hints of nuts. The aftertaste is just a bit tarry. Because the roll is tight, it's a bit of an effort to draw those flavors onto the palate.

The Robusto has a thicker roll, which opens up the flavors a bit. Contrary to some belief, thicker doesn't necessarily mean stronger; on the contrary, a large ring gauge will smoke cooler than a smaller one because it burns more slowly. The Cohiba in this size offered up bittersweet cocoa and woody notes at the start before developing nutty, subtly sweet flavors as it reached the halfway point. It's more complex than the corona, and generates bigger, aromatic clouds of smoke.

The Toro is a favorite size of many connoisseurs and it's easy to understand why: it's thick enough for a very complex blend and long enough for different flavor hints to develop as it smokes. My Cohiba Toro, with a bigger ring gauge than the Robusto, produced big, cottony clouds of white smoke and bold flavors almost from the first light-up, yet burned slow and cool. A spicy start gives way to some caramel and creamy notes and a coffee-bean finish.

The Churchill is the longest smoke of the collection, with a moderately large 49 ring gauge intended to deliver the smoke evenly to the palate, as opposed to a smaller ring, which might be too stingy with the flavors, or a bigger one, which could overwhelm with too much at once. This one started out with wheat toast notes and built steadily in intensity to develop the bitter cocoa and coffee hints that I noted in the Robusto, along with some zesty pepper overtones. Because the Churchill is in your mouth the longest, its rich molasses finish lingers awhile. While the Corona is the right size for a lunch break, the Churchill is an ideal after-dinner smoke, suited to long evening conversations — perhaps about comparing those favorite watch styles. ○

The Cohiba Puro Dominicana exhibits distinct flavor differences in each of its four vitolas.

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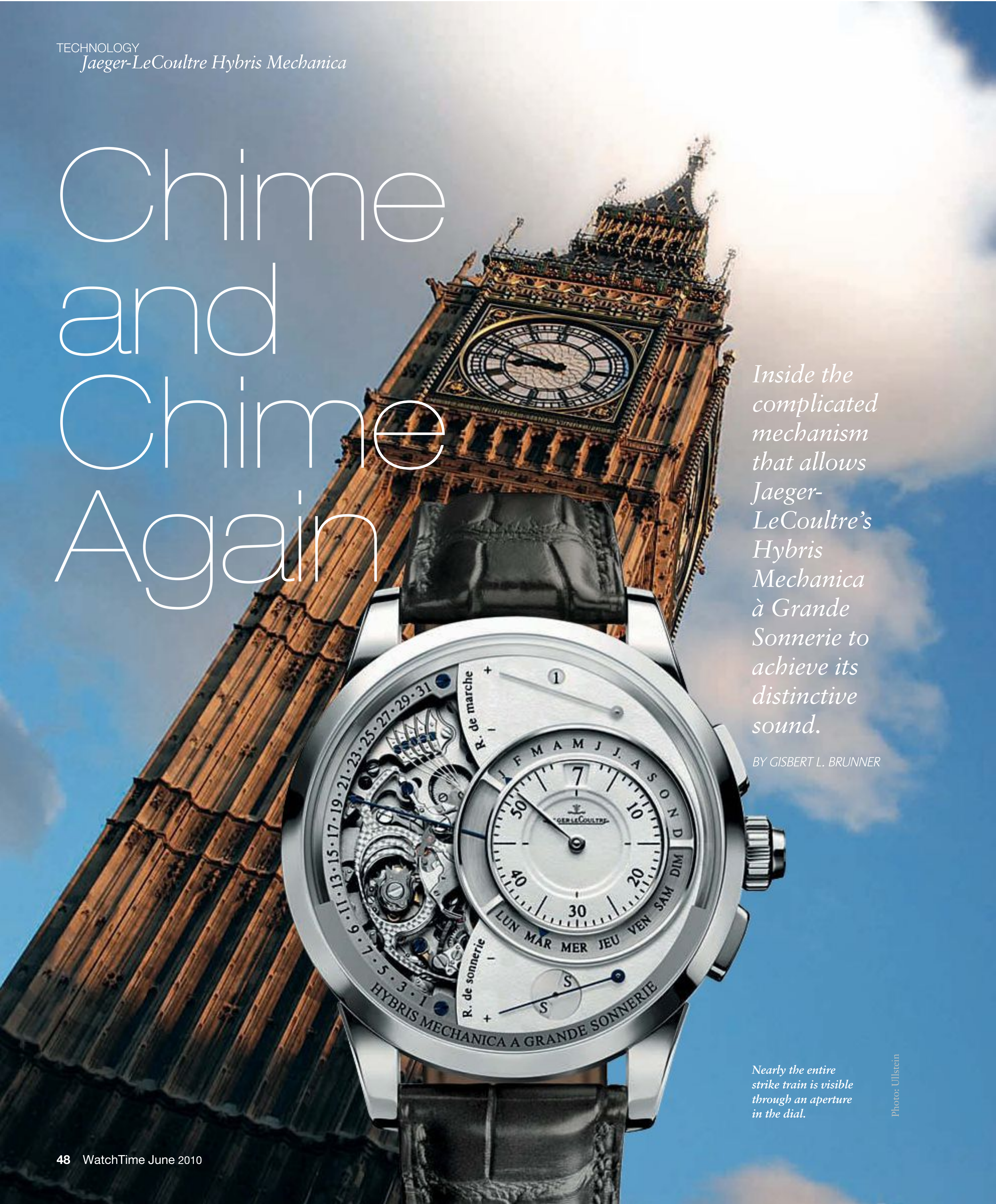
Chime and Chime Again

Inside the complicated mechanism that allows Jaeger-LeCoultre's Hybris Mechanica à Grande Sonnerie to achieve its distinctive sound.

BY GISBERT L. BRUNNER



Nearly the entire strike train is visible through an aperture in the dial.

Photo: Ullstein

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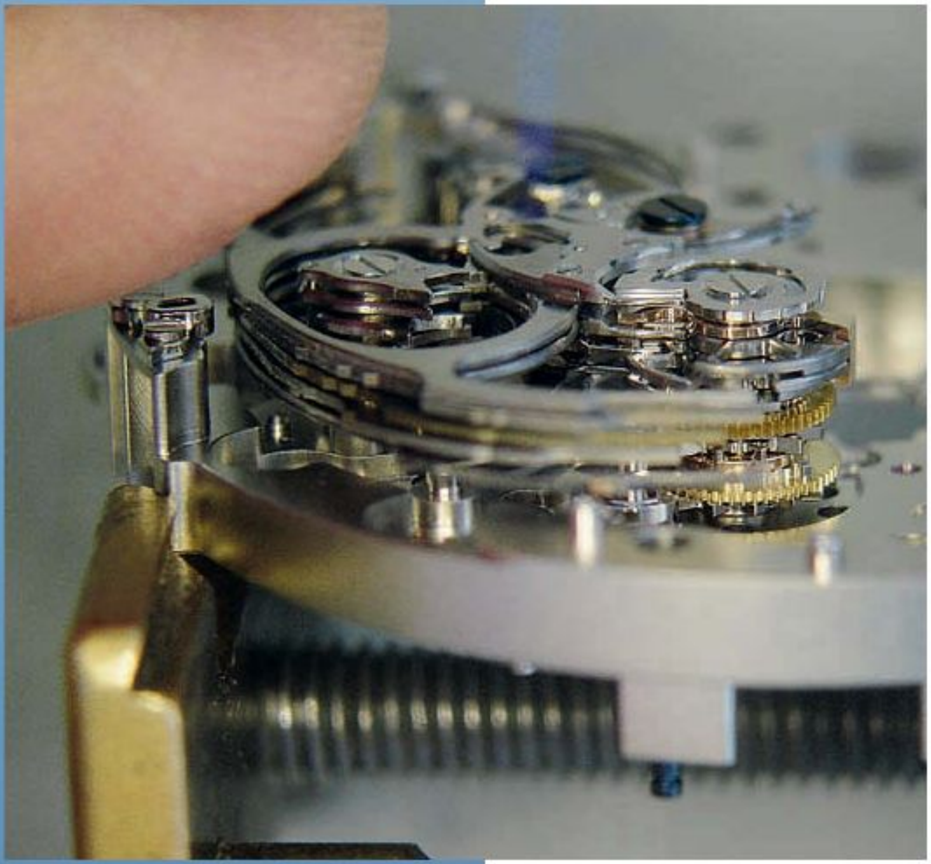

Big technology in a small space: two towers store the information for (right) and trigger (left) the strike train.

The famous Westminster chimes toll from the belfry of London's Westminster Palace, which houses the British parliament. Composed of five different sequences of tones, each consisting of four different pitches, the chimes peal every 15 minutes in the following series: sequence number one at 15 minutes past the hour; sequences two and three at 30 minutes past the hour; sequences four, five and one at 45 minutes after the hour; and sequences two, three, four and five at the full hour. After the fourth cycle has concluded, a monotone bell rings once at one o'clock, twice at two o'clock, and so forth until noon or midnight, when it sounds a series of 12 identical peals. The bell known as "Big Ben," the largest in the tower, sounds the repeated tones that toll the full hours. (The clock tower itself is commonly, and mistakenly, referred to by this name.)

The ingeniousness of the Westminster chimes lies in the fact that 40 individual notes are produced hourly by only four different pitches. Their tune, incidentally, can be duplicated in any key, which is why it has developed into one of the most popular melodies played by large, freestanding clocks with strike trains.

A clock that can play this tune in one's living room is fairly common, and not necessarily expensive, but a wristwatch that can do so presents extraordinary horological challenges. In addition to the functional interaction of four small components, the entire ensemble must also produce a mellifluous sound. Thus, it is not surprising to learn that, until recently, no wristwatch had ever been capable of playing the complete Westminster chimes.

But that watchmaking miracle became a reality this year, when Jaeger-LeCoultre introduced the Hybris Mechanica à Grande Sonnerie as the main attraction in a trilogy of watches with a grand total of 55 complications that it is offering as a set. (The other two models are modified versions of the Gyrotourbillon 1 and the Reverso Grande Complication à Triptyque, each of which will continue to be available individually.)

The new watch, available only in the set, contains the new manual-wound Cal-

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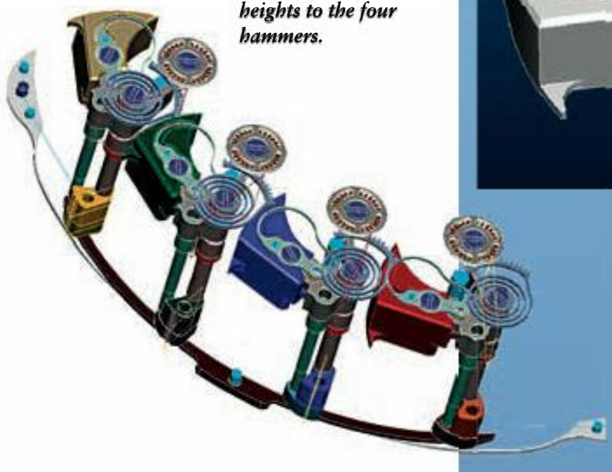
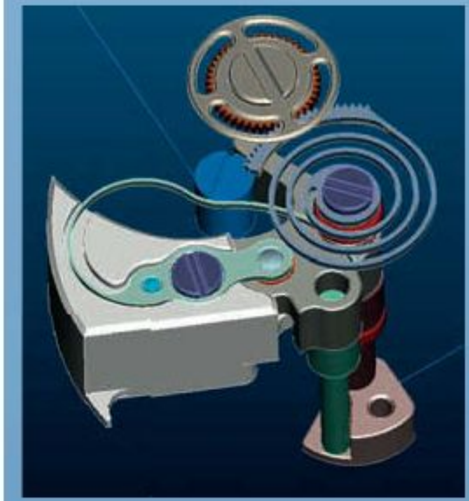


The gongs are struck by "noses," which are affixed at various heights to the four hammers.



The pre-tightened, coiled spring delivers a striking impulse to the spring atop the hammer.

THE WATCH HAS GRANDE AND PETITE SONNERIES, A MINUTE REPEATER AND A PERPETUAL CALENDAR.

iber 182. With more than 1,300 components, a diameter of 37 millimeters and a height of 10.4 millimeters, it may be the most densely equipped mechanical movement ever.

And the Westminster chimes aren't even its only attraction. Jaeger-LeCoultre has integrated into it the auditory Holy Trinity of grande sonnerie (the strike-train rings the hour at the full hour and also rings both the hour and the number of quarter-hours at 15-minute intervals until the next full hour), petite sonnerie (the quarter-hour is struck at each quarter and the hour tolls only at the full hour), and minute repeater (the watch can be triggered to chime the hour, the quarter-hour, and the number of minutes since the most recent quarter-hour). Moreover, even with all of these functions, the watch's strike train amasses an unprecedented 12-hour power reserve. In addition to its chiming functions, the watch includes a grand total of 26 complications, including a perpetual calendar and a flying tourbillon.

THE MOVEMENT'S security was also a concern. Ordinarily, a repeater watch is seriously damaged if its hands are readjusted backwards while the chimes are ringing. But Jaeger-LeCoultre's new system for setting the time cleverly avoids this problem. Rather than extracting and turning the crown to reset the hours (which in this watch are displayed on a jumping indicator) and minutes, the wearer uses two adjacent buttons at 2 o'clock that permit only forward resetting of those displays.

Even a large watch case has limited space, so a new and very compact architecture had to be devised for the striking mechanism. Relying on the conventional, horizontal arrangement would have been the horological equivalent of driving down a dead-end street. The technicians, well aware of the limitations, realized that the answer was a complex mechanical "brain" that would store all the progressions and sequences of tones for the watch. What they came up with is a 5.15-mm-tall turret consisting of three levels, each of which can move within itself: one level each for the hours, quarter-hours, and minutes. The hour cam, naturally, has 12 steps. The quarter-hour block has levels for the various partial melodies of the Westminster chimes. And the minute

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cam has a total of 15 steps. Because all need to be synchronized with the dial train, the tendency to chime at the wrong time is avoided.

OF COURSE, even the most innovative "brain" needs a "body" to carry out its functions. In the Hybris Mechanica's strike train's brain, this is the turret-shaped trigger mechanism, which works with little racks to lift the four tiny hammers that beat briefly and strongly against the four gongs, positioned one atop the other.

The design engineers also devised a new system for the hammers. The hammers in traditional strike-train mechanisms use about 90 percent of the available energy for themselves, leaving only 10 percent to generate the sound. Jaeger-LeCoultre's technicians devised a novel solution to this dilemma: pre-tightened, coiled springs enable the hammers to strike briefly but very dynamically against the gongs. As a result, the strike train operates with a more efficient 80 percent of the energy. Without this innovative system, it would have been impossible to give the strike train its exceptionally long power reserve.

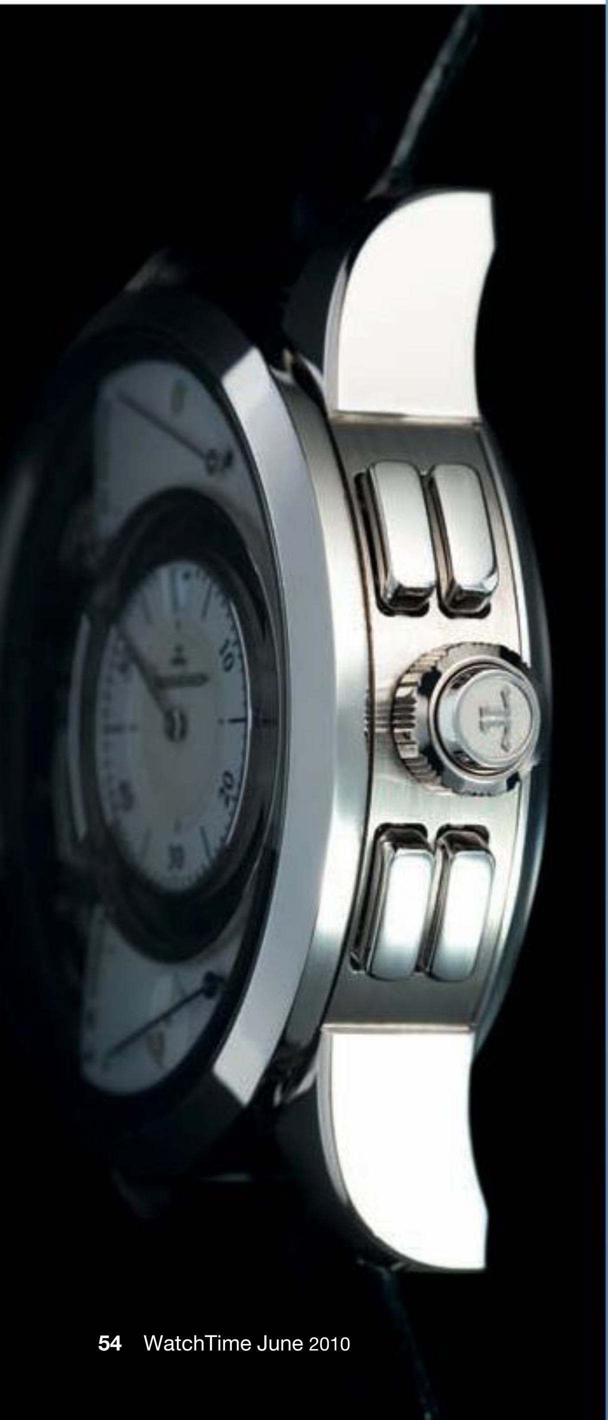
The movement's modern construction eliminates the need for the typical eccentrics to finely adjust the striking of the hammers. Jaeger-LeCoultre makes use of centrifugal force to ensure the uniform progression of the strike train: the regulating organ, which has two platinum bodies that move linearly away from the center, rotates silently and thus doesn't interfere with the strike train's sound.

The four gongs required intensive research and development. Each has an angular cross-section and all generate an impressive volume of sound when struck by their little hammers. Jaeger-LeCoultre processes each gong as a single piece from an innovative metal alloy, the formula for which is a closely guarded secret. The quality of the sound depends upon firm anchorage for the gongs. Steel screws, which would normally be used to affix them, are impractical because the screws are unable to resist stress over an extended period. Instead, Jaeger uses square-headed titanium bolts, which allow the gongs to be affixed with 500 percent more torque.

The gongs are soldered along with the domed sapphire crystal to a resounding body that sends its vibrations directly toward the front. Before inserting the crystal, watchmakers first heat the white-gold case, causing it to expand slightly. After insertion of the crystal, the case is left to gradually cool around it to ensure a vibration-free fit.

The system by which the crown provides energy is also interesting. The wearer turns the crown in one direction to tighten the mainspring that powers the strike train, and in the other direction to tighten the mainspring for the timekeeping functions. Incidentally, the sonnerie automatically switches itself off after six hours, after which the remaining force is available only for the minute-repeater function.

The designers also took to heart the old maxim that "silence is golden": the



The four push-pieces set the time and sonneries; the button in the crown triggers the minute repeaters.

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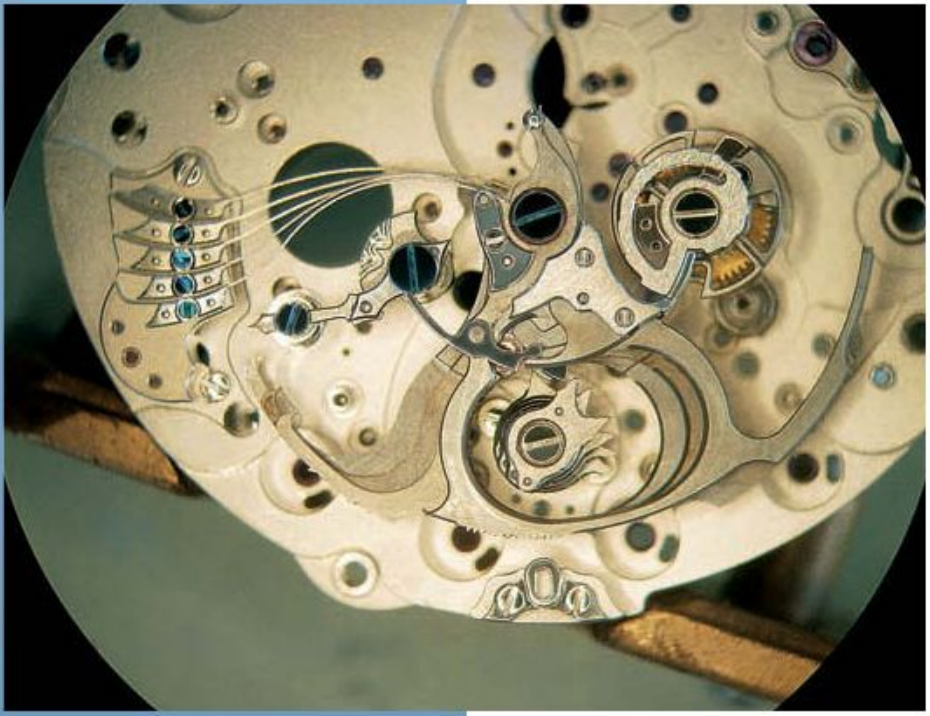
top push-piece at 4 o'clock allows the user to set the strike train to grande sonnerie, petite sonnerie or to not chime at all. A circular display below the main dial indicates the current setting.

THE INNOVATIVE strike train is obviously the most important function in the Hybris Mechanica à Grande Sonnerie, but this watch includes other complications as well. Its perpetual calendar indicates the date, day of the week and month by means of retrograde hands. A digit above the main dial indicates the current phase of the leap-year cycle.

The ultra-light titanium carriage of its classic tourbillon rotates wear-free thanks to ceramic ball bearings in the back. The tourbillon measures 12.4 mm in diameter and 3.9 mm in height. A balance with variable moment of inertia allows the balance spring to "breathe" freely, and its terminal end finishes in a Phillips curve. The balance oscillates at a pace of 28,800 vph (four hertz).

Two identically structured power-reserve displays, each equipped with spherical differential gear trains, indicate the available energy. In addition to the strike train's reservoir of 12 hours, the time-keeping movement holds about 50 hours of power.

No fewer than 130 holes are drilled into the nickel silver plate that supports this elaborate microcosm, which is fitted into a white-gold case measuring 44 mm in diameter and 15 mm in height. White gold for the case not only ensures an unpretentious appearance; it is also the ideal material to amplify the sound of the chimes.



The information that determines which gongs need to be struck is conveyed via levers from the hour, quarter-hour and minute cams (right) to the racks of the triggering tower (below). The racks trigger the hammers, which strike the gongs (left).

By request, Jaeger-LeCoultre will deliver this elite collection of three — Hybris Mechanica à Grande Sonnerie, Hybris Mechanica Gyrotourbillon and Hybris Mechanica à Triptyque — inside a special safe. (The price for this entire set is 1,800,000 euros, roughly $2.4 million.) Made in Germany, the safe measures 100 by 150 cm, weighs 70 kilograms, and is lined with either leather or Alcantara, a microfiber material. The interior is fitted with three drawers, each of which is connected to an electronically guided system that supplies energy regularly to the watches' manual-wound movements. A built-in microphone and a loudspeaker system carry the pealing of the sonnerie (if it has been activated) out of the safe and into the surrounding room, reminding the owner that he doesn't have to travel to London to hear the famous Westminster chimes.

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ON THE

The Swiss watch industry has not recovered from the Great Recession of 2009. But Baselworld showed that it is recuperating.

MEND

Photo: Baselworld

BY JOE THOMPSON

In Switzerland's watchmaking region, in the weeks before the mid-March opening of the annual Baselworld watch and jewelry fair, people were calling the 2010 show *"le salon de tous les désespoir"* — "the exhibition of the desperate."

Surprisingly strong retail watch sales in December, which buoyed spirits at the SIHH exhibition in Geneva in January, were not enough to cure what ails the Swiss watch industry. As Credit Suisse noted in a comprehensive survey of the Swiss economy in January, "The watchmaking industry is currently in its most severe crisis since the traumatic watchmaking crisis of the 1970s." Swiss watch exports fell a gut-wrenching 22.3 percent in 2009.

The Great Recession hit watchmaking harder than any other industry in Switzerland, measured by the unemployment rate, according to Credit Suisse. Heading into 2010, watchmaking had the highest unemployment rate of any sector of the Swiss economy, ranging from 10.8 to 12.7 percent, depending on whose numbers you use. In a country where unemployment is normally 2 percent, and where the current national unemployment rate of 4.1 percent is considered scandalously high, the watch industry, whose unemployment rate soared eight points within six months last year, is a disaster zone.

Hence, the grim hope in the battered watchmaking cantons of Jura, Neuchâtel, and Solothurn that Baselworld would provide some measure of solace for *tous les désespoir.*

On-the-scene reports indicate that it did. *WatchTime* spoke with numerous watch executives at the show about the state of the global watch market. All were reluctant to say that the industry is out of the woods. "I cannot tell you that the crisis is over," said Patek Philippe CEO Thierry Stern. "We believe that we are still in the middle of the tunnel. 2010 is still dangerous." But all the executives believe that the worst of the crisis is over and the industry is on the mend. The mood at Baselworld was infinitely better than the funereal atmosphere of the 2009 show, when the global watch market appeared to have collapsed. This year, a number of green shoots at Baselworld nurtured hopes that a recovery was either beginning or on the horizon:

- **More buyers.** The number of watch buyers at the show, which dropped 14 percent last year, staged a 7 percent recovery this year to 100,700. Baselworld issues no data on the amount of buying at the show, but the improved numbers buoyed spirits.
- **More watch exhibitors.** Also back was the full allotment of Swiss watch exhibitors, 292 this year, three more than last year. That's significant in light of dire predictions at last year's fair, reported by *WatchTime*, that 200 or more brands would vanish in 2009. That didn't happen. (See the Last Minute column on page 146 to find out why.) While some brands, like Wyler Genève, did go out of business, brand casualties were few. Show dropouts were easily replaced by Baselworld's long list of firms waiting to

Photo: Baselworld

Baselworld Exhibitors' Committee head Jacques Duchêne (second from right) at the Baselworld press conference. Tissot CEO François Thiébaud is to his right.

get in. The show's total number of watch exhibitors, including a giant contingent from Hong Kong, was 592.

• **Export bump.** Swiss watch exports finally took a turn for the better in January and February. January's 2.7 percent increase put an end to 15 consecutive months of declines. February's figures, released by the Federation of the Swiss Watch Industry (FH) during the show, were even better at 14.2 percent. True, the increases were against the abysmal performance of January and February 2009. Nevertheless, they signaled that the flood of inventory in global markets was ebbing and that retailers were reordering again.

Probably the best news in the February data was that exports to the hardest hit of all of Switzerland's major markets, the United States, went up by 19 percent. The FH lustily cheered the news. "After some hesitation in January and 16 months of intensely negative results, the United States finally returned to growth," it said in a statement. The FH rightly emphasized the positive. (Only a curmudgeon would stomp on this long-awaited buttercup of good news by noting that exports to the U.S. were, in fact, still falling in 2010. For the first two months of the year, exports were down 11.5 percent against the catastrophe that was 2009 and down 45 percent against 2008. But let us not quibble.)

> *"WE SEE SOME POSITIVE SIGNS. HOWEVER, THE GLOBAL ECONOMIC SITUATION IS STILL HIGHLY PRECARIOUS."*
>
> *BASELWORLD EXHIBITORS' COMMITTEE CHIEF JACQUES DUCHÊNE*

The January-February export data also confirmed that, unlike a year ago, there were some genuine watch hot spots in the world: the Far East (for example, China +66 percent, Singapore +78 percent, and Taiwan +41 percent) and the Middle East (UAE +23 percent and Saudi Arabia +49 percent).

• **Sales bump.** Moreover, anecdotal evidence at the show indicated that sales were picking up for established brands. Swatch Group Chairman Nicolas Hayek Sr. told *WatchTime* that group brands had the best December and the second-best January in its history. "For the month of February, the Swatch Group had a 39.5 percent increase in sales for all 19 brands," Hayek said. Hublot CEO Jean-Claude Biver announced on the final day of Baselworld that Hublot took orders at the fair for 14,000 watches worth 130 million Swiss francs. That amounts to two-thirds of Hublot's total annual production of 21,000 pieces. "It's fantastic," Biver said.

ON THE WHOLE, executives curbed their enthusiasm about the improved show mood primarily because of the shaky state of the global economy. "The economic upturn is very fragile because it is due to government intervention," said René Kamm, CEO of the MCH Group, which owns and operates the Baselworld fair. Kamm noted that there is strong natural demand for watches and luxury goods in China. Elsewhere, though, governments are artificially stimulating economic growth. Natural organic demand has not yet returned to the marketplace. Watch executives pointed out that the global economy is spotty at best. A review of the FH export data for 2010 so far told the tale. Of the top 10 export markets, Hong Kong, China, Singapore and the United Arab Emirates are going gangbusters. The other six top markets are going nowhere. The United States, Japan, and the top four European markets are down anywhere from 7.5 to 21.3 percent against 2009. (See table.) The "cautious optimism" mantra that executives used to character-

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ize the fair contained more caution than optimism in private conversations.

In a speech to the press the day before the fair opened, Jacques Duchêne, a longtime Rolex executive who has attended more than 50 Basel fairs and is now president of the fair's Exhibitors' Committee, warned, "We now see some positive signs. However we should not be overly confident because the global economic situation is still highly precarious. We should also be concerned by the employment situation. The gradual drain of expertise should set alarm bells ringing. We should not forget that many small businesses, key for our sector, encountered severe difficulties and numerous highly qualified professionals lost their jobs."

Behind the scenes, executives voiced concerns about the fate of smaller firms, both small brands and component suppliers. "For well-known brands the crisis is over," says Yves Vulcan, CEO of Darwel SA, the public relations arm of the Swiss exhibitors. "For the others it is a question of cash and a question of time. Last year some brands took their gold watches and melted them down to get cash." Said François Thiébaud, CEO of Tissot and head of the fair's Swiss Exhibitors' Committee, "Some [small brands] might disappear after Basel if they do not get orders at this fair."

Everyone agrees that the most desperate of the *désespoir* are the component suppliers: makers of movements, cases, dials, hands, etc., who rely on brands for orders. The Credit Suisse study noted that, "The crisis is having a severe impact on small components suppliers, which suffered a dramatic drop in orders in 2009." And a dramatic rise in accounts receivable. The poster child for the plight of component producers is BNB Concept, the celebrated producer of complicated movements, which went belly up in January. "A lot of suppliers are in a very bad position," said Thierry Stern. "Some will be gone, that's for sure."

UNLIKE LAST YEAR, when the crisis dominated the proceedings, there was a renewed focus on product at Baselworld 2010 and a welcome reappearance of "buzz" in the halls about certain watches.

"I CANNOT TELL YOU THAT THE CRISIS IS OVER. WE ARE STILL IN THE MIDDLE OF THE TUNNEL. 2010 IS STILL DANGEROUS."

PATEK PHILIPPE CEO THIERRY STERN

UPS AND DOWNS Switzerland's Top 10 Export Markets

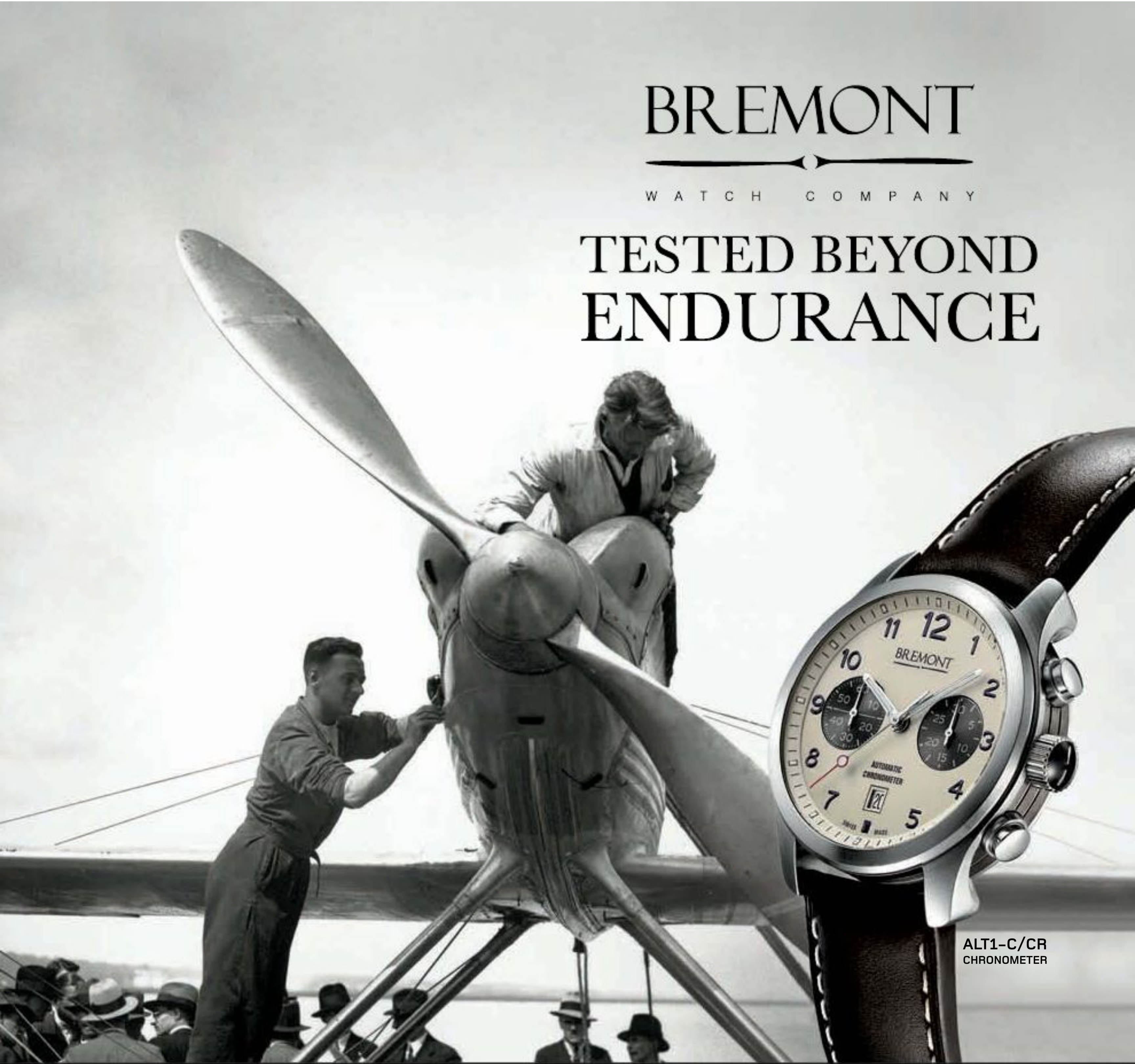
January-February 2010
(in million SF)

Market	Value	% vs 2009
1. Hong Kong	456.1	+21.4
2. USA	208.8	-11.5
3. China	149.9	+66.3
4. Singapore	128.3	+77.8
5. France	124.1	-7.5
6. Italy	122.1	-10.6
7. Germany	108.8	-10.8
8. Japan	103.1	-21.3
9. UAE	92.1	+23.4
10. United Kingdom	69.6	-7.9

Source: Federation of the Swiss Watch Industry

It was not at the level of 2007 and 2008, when the economy was booming and brands fed the frenzy with all manner of exotic contraptions (remember DeWitt's $650,000, five-barrel, 21-day-power-reserve WX1 watch in 2008 that came with a desk stand?). But buyers and journalists once again chatted about unusual items, like Rolex's first-ever green-dial Submariner (see cover) and Chanel's Rétrograde Mystérieuse with an Audemars Piguet Renaud et Papi-made movement and unusual pop-up crown. Breguet introduced the world's first 10 Hertz watch in its new Type XXII. Concept-watch king TAG Heuer unveiled another one, the Pendulum, which replaces the traditional hairspring with magnets. Bell & Ross, whose Airborne watch with a skull and crossbones dial raised eyebrows last year, continued its innovate styling, this time with a Radar watch, inspired by a cockpit radar indicator. In quartz technology, Seiko and Bulova unveiled new ultra-accurate watches (+/- 10 seconds per year).

This was the first show with products made (and priced) for the post-Lehman Brothers world. (The watches unveiled at Baselworld 2009 were conceived prior to the Lehman collapse in September 2008, which triggered the Great Recession.) As at the SIHH show in Geneva in January, the trend was toward sober, sensible, understated styling. There were more clean, classical, thinner looks and lots of "vin-



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Show attendance was up seven percent over last year.

Photo: Baselworld

THE FIRST BASELWORLD WITH PRODUCTS MADE (AND PRICED) FOR THE POST-LEHMAN BROTHERS WORLD FEATURED SOBER, SENSIBLE, UNDERSTATED STYLING.

tage” models (remakes of past hits from company archives), and, truth be told, lots of line extensions. The exotic materials trend of recent years slowed down, but tried and true special materials like titanium and ceramic abounded. The high complications of choice this year were calendars (both annual and perpetual) and repeaters. Tourbillon watches, which firms kept in the drawer last year, were back. Open-worked and skeleton designs stayed strong.

The trend for Swiss firms to introduce movements made in-house has turned into a stampede. Hublot, TAG Heuer, DeWitt, and Perrelet are the latest brands to claim the *manufacture* designation reserved for firms that have designed and produced at least one movement entirely in-house.

There was a strong trend to more affordable pricing. Companies did not drop prices on existing models, but introduced new pieces at lower price points. This occurred up and down the price pyramid. Zenith, for example, introduced a dramatically reduced opening price point for the line. Its new ultra-thin steel Elite watch sells for $3,900. The new steel Rolex Explorer with a movement redesigned to fit the larger case (39 mm diameter, up from 36 mm) is priced at $5,900. Perrelet’s opening price point last year was $3,500; this year it is $2,100. Movado is testing a new collection of quartz watches called Movado Bold priced at $350. Seiko offered new models at lower price points. The opening price point in its Sportura collection ($495) was under $500 for the first time; Le Grand Sport models were under $300 for the first time. Seiko USA executive vice president Marty Gormley succinctly summarized the new design mood: “Safe design, safe looks, very conservative, very sellable.”

On the following pages is a sample of the new models from Baselworld. We’ll follow with a second round of Baselworld coverage in the July-August issue.

POSTSCRIPT: Baselworld management has announced the dates for the next three shows. They are March 24-31, 2011; March 8-15, 2012; and April 25-May 2, 2013. SIHH management has announced that the 2011 show will be held from January 17 to 21 in Geneva. ○

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Baselworld 2010

Part One of WatchTime's *annual report on the cavalcade of new timepieces introduced at the world's premier watch fair*

The Sub Grows Greener

SUBMARINER fans all remember the special green-bezel version that came out in 2003 to mark the Sub's 50th birthday. Now Rolex has gone even greener by adding a green dial. The color comes from blending yellow-gold powder with aluminum powder. The watch ($7,900) has another new feature: it is the first steel **Submariner** with a ceramic bezel (Rolex added ceramic bezels to its gold and steel-and-gold Submariners in 2008). The markers on the bezel, which rotates in one direction, are platinum. The shape of the watch case, which is 40 mm in diameter, has also been changed somewhat so that it has wider lugs. The Submariner contains the self-winding Caliber 3135, with Parachrom hairspring, made in Rolex's factory in Bienne (see "Inside Rolex Bienne" in this issue). The dial markers and hands are luminous. The bracelet is of the Oyster style and is fitted with an adjustable Glidelock clasp. If green isn't your color, the watch also comes with a black dial and black ceramic bezel ($7,400).

Rolex's new Submariner with green dial and ceramic bezel.

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TAG Heuer put the movement in a Grand Carrera case for its debut at Baselworld

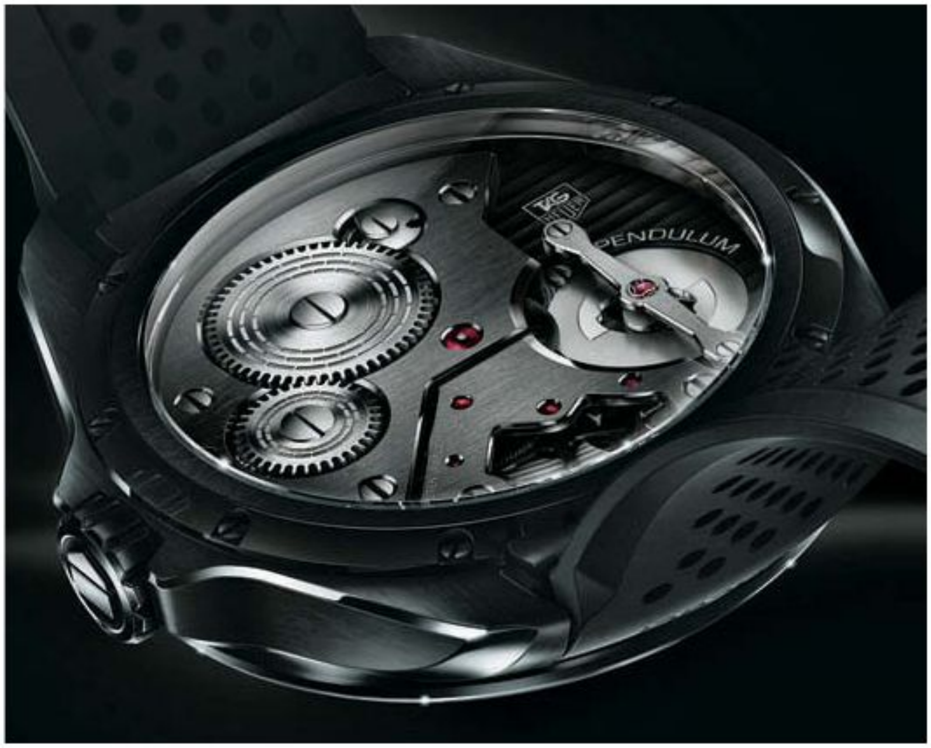
TAG's Magnetic Attraction

A MECHANICAL WATCH without a hairspring? It's possible, says TAG Heuer. The company has announced a new "concept" movement that uses four magnets, rather than a hairspring, to provide the torque necessary to make the balance wheel oscillate.

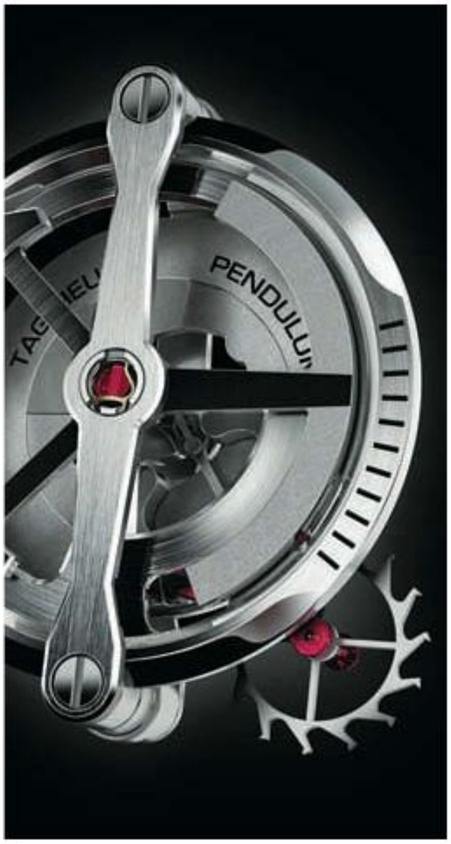
The company says magnets keep better time than a hairspring because the latter is deformed by gravity and also because of the difference between a hairspring's center of gravity and its geometric center. There is no loss of amplitude in its magnet-regulated movement, TAG says, and the device allows for very high frequencies without using up too much power. The balance of the new movement beats at a very speedy 43,200 vph. TAG calls the movement the "Pendulum Concept," not because it contains a pendulum but because, like a pendulum, it is an alternative to a hairspring in regulating a timepiece.

TAG has not gotten all the kinks out of its new movement: the magnets are affected by temperature and hence don't keep uniform time. Solving that problem could take years, TAG concedes. Nor does the company expect that magnets will ever replace hairsprings in mainstream watchmaking. If the new system is ever perfected, it will remain a "haute horlogerie alternative," TAG says. For the movement's debut, TAG put it in a Grand Carrera model, although the watch is not available for sale. The balance can be seen through an aperture on the watch dial.

The back of the Grand Carrera containing the new balance



TAG Heuer's new magnet-regulated balance



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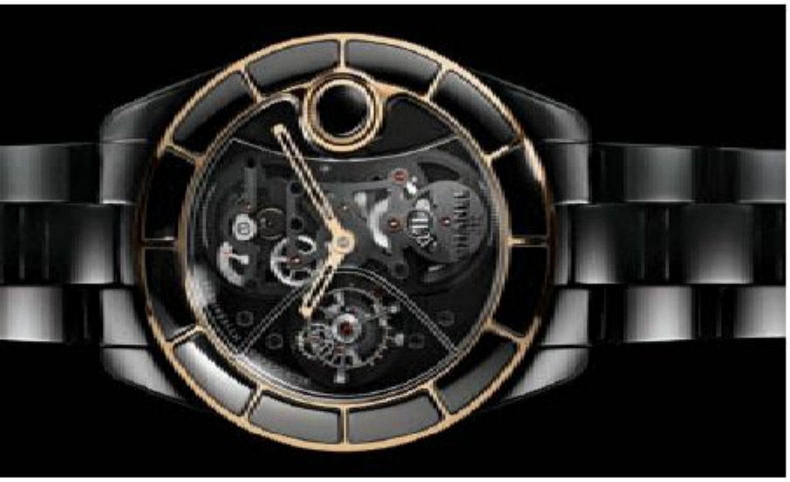


Chanel's J12 Rétrograde Mystérieuse with pop-up crown

Rounding it Out

HOW COMPLICATED can it be to make a perfectly round watch? It seems movement maker Audemars Piguet Renaud Papi was determined to find out. The movement it designed for Chanel's J12 Rétrograde Mystérieuse, per Chanel's request a perfectly round watch with no crown on the side, is amazingly, amusingly, complex.

The crown is on the face of the watch, at 3 o'clock. But its position there creates a problem: the crown stands in the way of the minute hand, blocking it when the hand gets to the 2 o'clock position. To get around the difficulty (literally), APRP made the minute hand shift into reverse when it gets to 2 o'clock, and to move five times faster than a normal minute hand, so that it reaches the 4 o'clock position, traveling through a 50-minute arc, in 10 minutes. When it gets to 4 o'clock, it reverses direction again and travels clockwise, now at standard minute-hand speed, until it once again reaches the 2 o'clock position. To fill the 10-minute "gap" that occurs each hour when the hand is going backwards and hence out of commission, an aperture at the 5:30 position displays the passing 10 minutes digitally (using numerals 9 through 11). When they're over, the aperture goes blank and remains that way for the next 50 minutes.

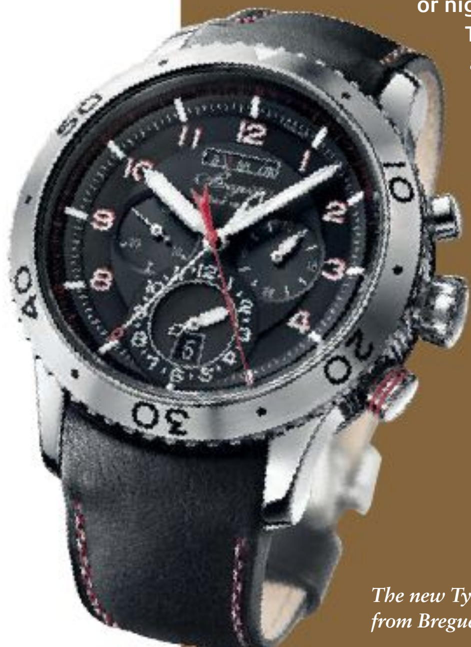
APRP incorporated several other notable features. They include the crown itself which, when pressed, rises up above the face of the watch and into winding position. Winding finished, the wearer presses it again, lowering it to "standby" position, flush with the watch face. To set the watch, the wearer uses a push-piece concealed in the bezel at 2 o'clock. Another push-piece at 4 o'clock disconnects the time-setting function. Also noteworthy: the watch has a power reserve of 10 days (there's a power-reserve indicator between 11 and 12 o'clock). Winding the movement, which has two barrels, requires 50 turns. And, for good measure, the watch has a tourbillon. There will be 10 pieces in white gold and 10 in rose gold. The price: $256,000.

Fast-Beat Breguet

TALK ABOUT "FAST BEAT." The movement inside Breguet's new Type XXII chronograph oscillates at an amazing 10 Hertz, or 72,000 times per hour, twice the rate conventionally described as "fast beat." What makes such a high frequency possible, the company says, is the watch's silicon escapement, which is lightweight and requires no lubricants.

Because the balance oscillates so quickly, the watch can display the time more precisely than can a standard mechanical watch. The chronograph seconds hand rotates once every 30 seconds. To keep track of the number of 30-second intervals that have been timed, the watch has a special center-mounted hand that adds them up and displays elapsed minutes. At 12 o'clock there is a rectangular aperture with a retrograde pointer that shows whether the chronograph seconds hand is timing its first or second 30-second interval in a given minute. The chronograph has a flyback function. The subdial at 9 o'clock shows the running seconds; its hand also rotates once every 30 seconds.

The watch also shows the time in a second time zone in a subdial at 6 o'clock. A display at 3 o'clock shows whether it is day or night in that time zone. The date display, also at 6 o'clock, corresponds to the time zone shown on the main dial. The case is steel and 44 mm in diameter. Price: $18,200 on a leather strap and $19,600 on a bracelet.



The new Type XXII from Breguet

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Precisely Speaking

IF STANDARD QUARTZ precision isn't precise enough for you, Bulova has introduced a new quartz movement that keeps time to within 10 seconds a year. That's a big step up from standard quartz accuracy of plus or minus 10 to 15 seconds per month, and similar to the precision promised by the makers of very accurate thermocompensated quartz movements now on the market.

Bulova calls its high-precision quartz technology Precisionist. It derives its high level of accuracy not from thermocompensation — a way of making up for the effects of temperature changes on the frequency of a quartz crystal — but from the unusual structure and high frequency of the crystal. Instead of having two prongs, as do the resonators in most quartz watches, it has three, and they oscillate not in the normal back-and-forth manner but with a twisting motion (the crystal is called a "torsional resonator"). The resonator oscillates eight times faster than a standard quartz crystal, that is, 262,144 times per second.

The watch has another unusual feature. Its seconds hand does not jump from one second to the next, as do the seconds hands on other quartz watches. Instead, it makes 16 jumps per second, giving the appearance of continuous motion. The hand moves more smoothly than even the seconds hand on a mechanical watch, which in most instances jumps six or eight times per second.

Bulova developed the Precisionist movement in collaboration with its new parent, Citizen Watch Co., which bought Bulova in 2007. Precisionist technology will be incorporated in 18 models with prices starting at $299.

A Bulova Precisionist sports watch with carbon-fiber dial, $499

Seiko's limited-edition Quartz Astron, commemorating the 1969 original

Astron Redux

FORTY YEARS AGO last Christmas, Seiko changed the watch world by introducing the world's first quartz watch, the Quartz Astron. To commemorate the event, Seiko is bringing out a limited-edition, updated version of the Astron. There will be 200 pieces, of which 40 will be available in the United States at $5,000 each. The watch contains the high-precision, thermocompensated quartz Caliber 9F62, used in some models in the company's Grand Seiko collection, and accurate to within 10 seconds per year.

Perhaps ironically, Seiko has gone to some trouble to make the new Astron look like a mechanical watch. Its hands are larger and therefore heavier than those on a typical quartz watch, Seiko says, a feature made possible by the greater torque that the movement provides.

The watch has some other interesting features. Its date display gives new meaning to the term "instantaneous changing" by completing the change in 1/2,000 of a second, faster than the eye can see. It does so by means of a special lever. And, unlike the seconds hands on other quartz watches, the new Astron's aligns precisely with the markers on the dial, thanks to what Seiko calls a "backlash auto adjustment system." The watch also has a battery-life indicator.

The case has the same shape as that of the original Astron but is made of titanium (the 1969 model was gold). It is water-resistant to 100 meters. The quartz symbol that appeared on the first Astron is duplicated throughout the pattern on the new watch's dial.

Caliber DW 8014 is the first in-house movement from DeWitt.

DeWitt Debuts DW 8014

MONTRES DEWITT, which claimed the Geneva Watchmaking Grand Prix award for Innovation after only two years in the business for its Academia Tourbillon Differentiel, now enters the arena of brands making at least one movement of its own.

Baselworld 2010 saw the debut of Caliber DW 8014, which combines a regulator design with a tourbillon and introduces the patented ASW (automatic sequential winding) system, driven by a peripheral oscillating rotor, a type of mechanism seen previously only in Carl F. Bucherer's CFB A-1000 movement, introduced two years ago.

The ASW device, the central innovation of DeWitt's new caliber, distributes a constant flow of energy to the going train through a sequenced winding of the barrel. The system is intended to eliminate the running errors that occur on conventional automatic calibers with slip springs. The movement also incorporates a central dead-beat seconds function, wherein the hand pauses once each second, in the precise manner of a quartz-driven watch; the tourbillon cage is directly in contact with the seconds hand.

Caliber DW 8014 measures 37 mm in diameter and 6.35 mm in height. It holds a power reserve of 72 hours, which it displays at 9 o'clock by means of a hand moving in a 180-degree arc. The balance oscillates at 18,000 vph and uses a Straumann hairspring with a Phillips curve, made from a virtually unbreakable, non-oxidizing, antimagnetic alloy. De Witt's engineers strove to give the caliber an Art Deco look, with emphasis on simple geometric shapes. Côtes de Genève, satin-brushed surfaces, circular graining, polishing and beveling are among the decorative touches on the DW 8014.

According to DeWitt, the movement is slated to make its debut inside a new watch model in 2011.

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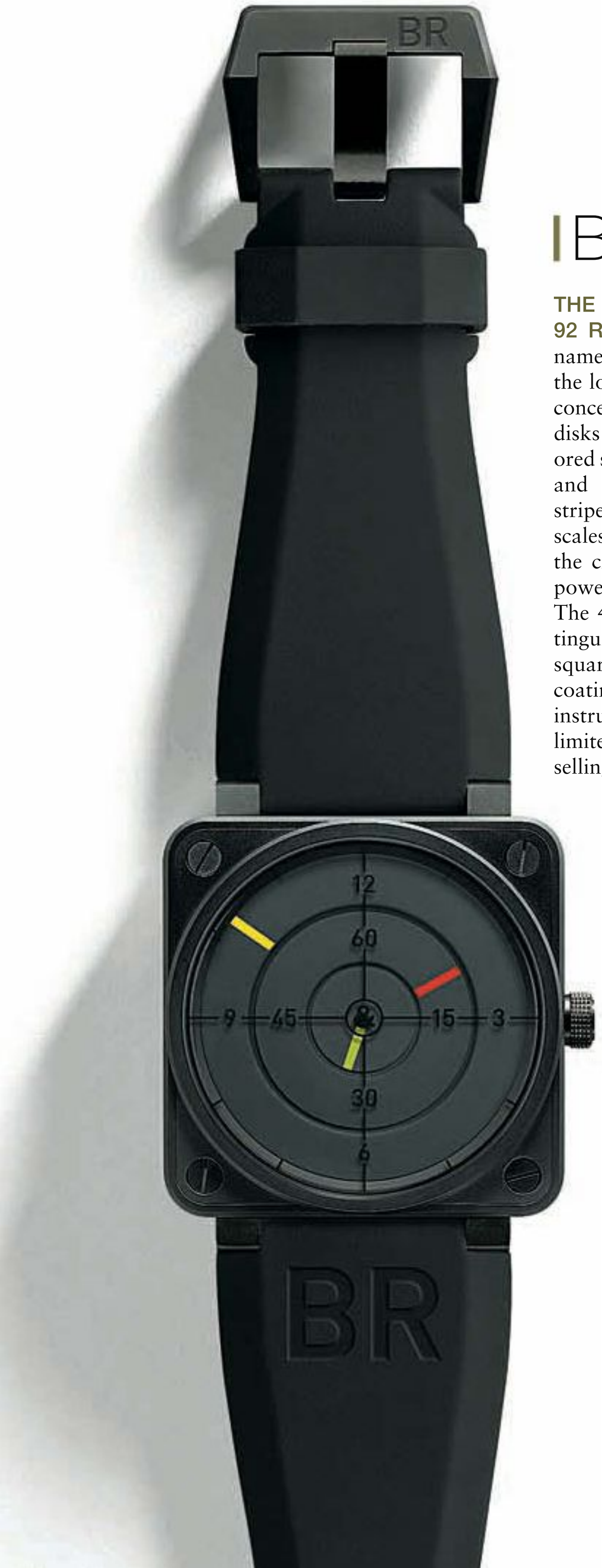
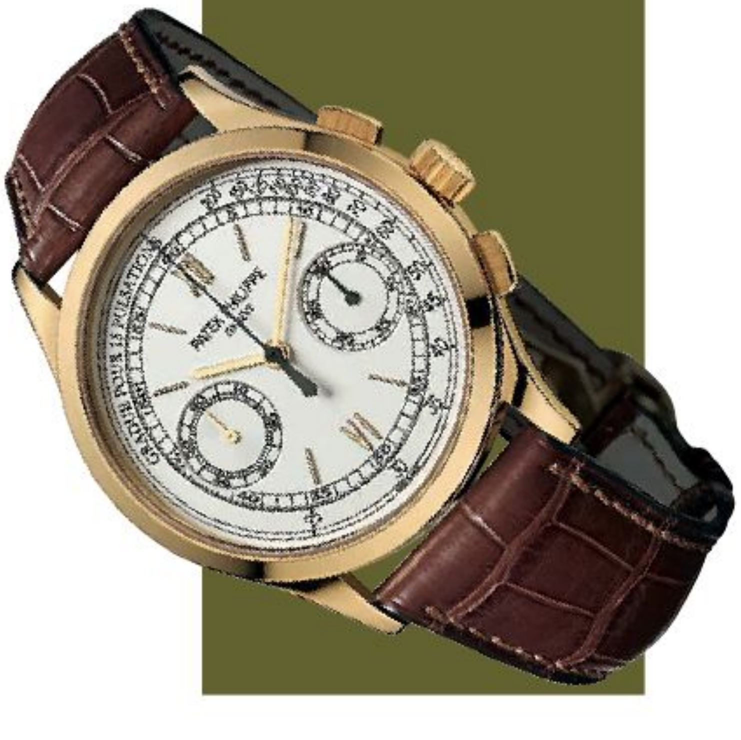


Bell & Ross

THE NEW INSTRUMENT BR01-92 RADAR gets its clever nickname from its dial, inspired by the look of a radar screen. Three concentrically rotating black disks each bear a differently colored stroke for the hours, minutes and seconds. These colored stripes indicate the time along scales printed on the underside of the crystal. A rebuilt ETA 2892 powers the timekeeping rings. The 46-mm-diameter case is distinguished by the brand's typical square shape and has a black coating to underscore its cockpit-instrument styling. The watch is a limited series of 500 pieces, each selling for around $5,000.

Patek Philippe

EXPECTATIONS were high for Patek Philippe's first serially produced chronograph with a *manufacture* hand-wound caliber. Then the elite Swiss brand threw its many fans a curve when it introduced the new movement inside a ladies' watch rather than a men's model. While some were disappointed in the decision, the publicity surrounding it proved to be a masterful marketing strategy, stoking the fires for the inevitable launch of the new gentlemen's version, Reference 5170. Its classical design recalls Patek chronographs of the 1940s and '50s. Particularly noteworthy is the movement's special construction, which positions both the subdials for the elapsed minutes and the continually running seconds hand below the dial's equator. *Manufacture* Caliber CH-29-535 PS, with column wheel and horizontal coupling, is packed inside the 39-mm-diameter yellow-gold case with shaped push-pieces and a sapphire exhibition caseback. The price for the Reference 5170 is $66,200.



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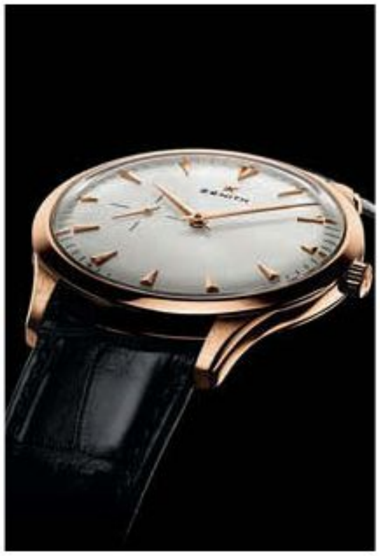
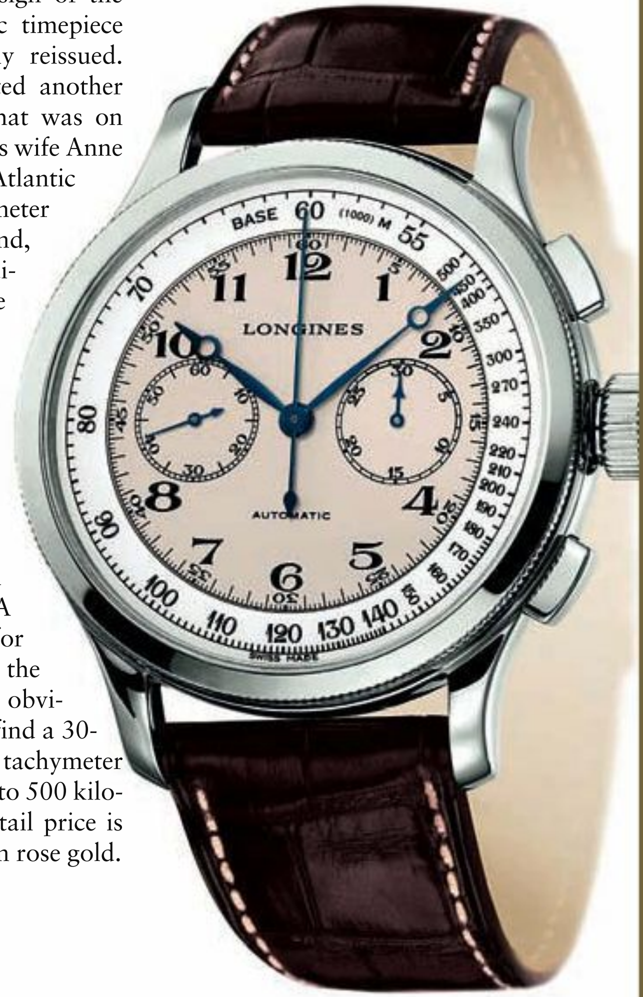


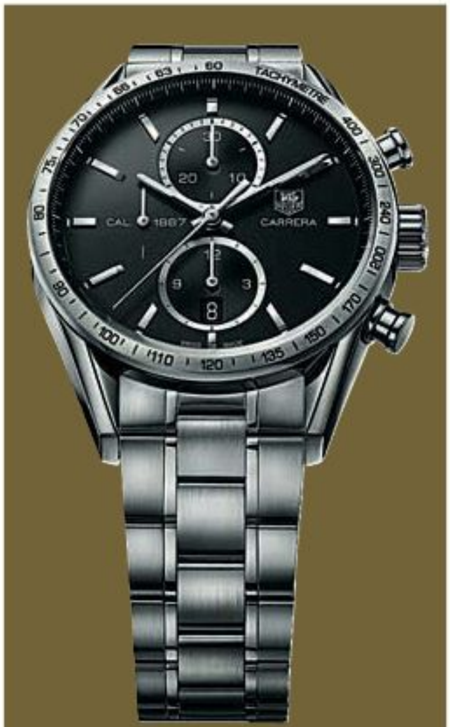
Zenith

BOTH THE CASE and caliber — automatic Elite 681 — are very slim in this new retro-styled watch from Zenith. The case of the **Elite Ultra Thin** is 40 millimeters in diameter, 7.6 millimeters in height and provides sufficient space for the 3.8-mm-thick movement. It has a domed sapphire crystal above the dial and a pane of sapphire in the caseback. With an unobtrusive, small seconds subdial at 9 o'clock and elaborately shaped indices, this watch is available in rose gold and stainless steel, with a silver-colored, dark gray or white dial. This *manufacture* timepiece sells for $3,900 in steel and $10,800 in gold. Limited-edition versions with diamond indices are also available.

Longines

THE PIONEERING aviator Charles Lindbergh contributed to the design of the Hour-Angle Watch, a classic timepiece that Longines has repeatedly reissued. Now this brand has recreated another historic watch — the one that was on board when Lindbergh and his wife Anne flew the so-called North Atlantic Flight Route, a 47,000-kilometer odyssey across Newfoundland, Greenland, Iceland, Scandinavia, Russia, Western Europe and Portugal, returning to the United States via Gambia, Brazil and Cuba. The new edition of the watch that accompanied the Lindberghs is 47.5 mm in diameter and has a hinged caseback that opens to reveal a sapphire viewing window and, beneath it, the movement, an ETA A07.231, made exclusively for Longines. Resemblances to the original Lindbergh watch are obvious on the dial, where you'll find a 30-minute chronograph with a tachymeter scale calibrated for speeds up to 500 kilometers per hour. The U.S. retail price is $4,500 in steel and $12,000 in rose gold.





TAG Heuer

TAG HEUER'S new chronograph movement, Caliber 1887, sparked some controversy when it was originally announced as an in-house development. TAG admitted that it was actually derived from a Seiko column-wheel caliber that the brand had modernized and for which it had purchased the rights to produce in Switzerland. TAG Heuer makes the movement plate, the bridges and the winding rotor at the brand's new production site in Cornol. The escapement comes from Nivarox. The movement gets its name from the main technical change made to it, which is the integration of an oscillating pinion to couple and uncouple the chronograph, a solution invented by Heuer in 1887. Caliber 1887 makes its debut in a Carrera model: styled in the famous design of that series, the **Carrera Calibre 1887 Chronograph** ($3,900) is available with either a black or silver-colored dial and with a stainless-steel bracelet or alligator leather strap. The 41-mm-diameter case is water-resistant to 100 meters.

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Carl F. Bucherer

THE MOVEMENT debuted in 2008. The watch followed in 2009. Now the first new complication arrrives: the **Patravi Evo-Tec PowerReserve** is an augmented version of last year's model, the Patravi EvoTec DayDate. The first *manufacture* caliber from Carl F. Bucherer, the CFB A1000, serves as the base for various modules (for example, the displays for the date and day of the week on the DayDate). This year's model brings more colors to the dial: several are used in the lettering on the scale of the power-reserve display, and the bright red field behind the white rack to which the indicator hand is attached warns the wearer of dwindling energy in the mainspring. Carl F. Bucherer's cleverly designed rotor, unlike conventional rotors, rotates around the periphery of the movement, never obstructing the view and also making it possible to install modules on both sides. Like last year's model, this watch is available in either stainless steel or rose gold. Both versions have rubber bezels. Prices are $17,500 for steel and $39,500 for gold.

Rado

THIS YEAR, Rado releases its r5.5 model for the first time with a mechanical movement. The watch, which was designed by the British industrial designer Jasper Morrison, had previously used a quartz movement, but is now powered by an ETA 2892. The original version's square ceramic case and integrated bracelet with tapering elements have been preserved, but a sapphire viewing window in the caseback now invites aficionados to admire the mechanical movement. The price was unavailable at press time.

Blancpain

THE FIRST MODEL in Blancpain's revamped Villeret collection, the **Villeret Phase de Lune Demi-Savonnette**, puts a full calendar with a moon-phase display inside a 40-mm-diameter, rose-gold case with a hinged cover on the back. The new automatic Caliber 6654 combines 321 components and uses two barrels to provide three days of energy. For those more concerned with aesthetics, Blancpain placed the corrector buttons for the date, weekday, month and moon phase beneath the lugs, where they don't interfere with the smooth surfaces of the polished flanks. Furthermore, these buttons are large enough to operate with a fingertip. Last but not least, Blancpain has designed the calendar mechanism so that all displays can be reset at any time without risking damage to the movement. The price is $25,800.

MT. EVEREST PENSIONER

Sir Ranulph Fiennes has been called "the world's greatest living explorer" by the Guinness Book of World Records. However, on his 65th birthday, earlier this year, the media in his native Britain called him an old-aged pensioner. "I receive free bus passes and other government incentives to help me accept that I'm now old and fragile," smiles the mischievous adventurer. Yet only a few months later, Sir Ranulph became not only the oldest Briton to reach the summit of Mt. Everest, he also set a record for being the first human to walk to the North Pole, South Pole, and to summit Mt. Everest. We designed the Soarway GMT with world travelers like Sir Ranulph in mind and are honored that he tested a prototype of the watch on his most recent expedition.

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Corum

AS ITS NAME explicitly states, Corum's 45-mm-diameter **Admiral's Cup Minute Repeater Tourbillon 45** combines a minute repeater function with a tourbillon. In addition to the translucent sapphire dial, the triggering mechanism for the strike train is particularly noteworthy: the hourly, quarter-hourly, and single-minute chimes are not triggered by a slide, but by turning the model's trademark 12-sided bezel. Another unusual technical detail is the anchor, which is made from tough-yet-lightweight silicon. In tandem with the tourbillon escapement, it ensures an uncommonly precise rate performance. This highly complicated timepiece is a limited-edition anniversary model commemorating 50 years of the Admiral's Cup line. Only 10 pieces will be made, each selling for $290,000.

Raymond Weil

THIS YEAR'S VERSION of Raymond Weil's leader model, the **Nabucco**, puts a case of sand-blasted titanium around a gray dial embellished with an undulating pattern. To match the color scheme, the hour hand and minute hand are coated with gray luminous material rather than the conventional green. As with other Nabuccos, the movement is a Valjoux 7753. The crown, the push-pieces, and the date corrector at 10 o'clock all screw down, so this watch's inner workings are water-resistant down to 200 meters. The leather strap is unusual and elite: most brands use North American alligators as the source of their leather, but Raymond Weil opts for the rarer skin of the Nile crocodile. This 46-mm-diameter chronograph costs $4,600.

Hublot

UNTIL THE BEGINNING of this year, the complication specialist BNB Concept had supplied tourbillon movements and other mechanical specialties to 28 manufacturers of luxury watches. In the wake of BNB's sudden bankruptcy in January, Hublot hired several of its watchmakers and technicians with the goal of advancing the brand's *manufacture* strategy, which began in 2009, with the introduction of Hublot's first in-house caliber, the Unico. Hublot had already been purchasing all its tourbillon movements from BNB, for use in watches such as the new **Gold King Power Tourbillon GMT** with retrograde date and second time zone. In the Hublot tradition, the case and the indicator elements are made from the brand's own gold alloy, which acquires an unusual color and a much greater hardness than that of ordinary gold thanks to the addition of five percent platinum. Price: $175,000.

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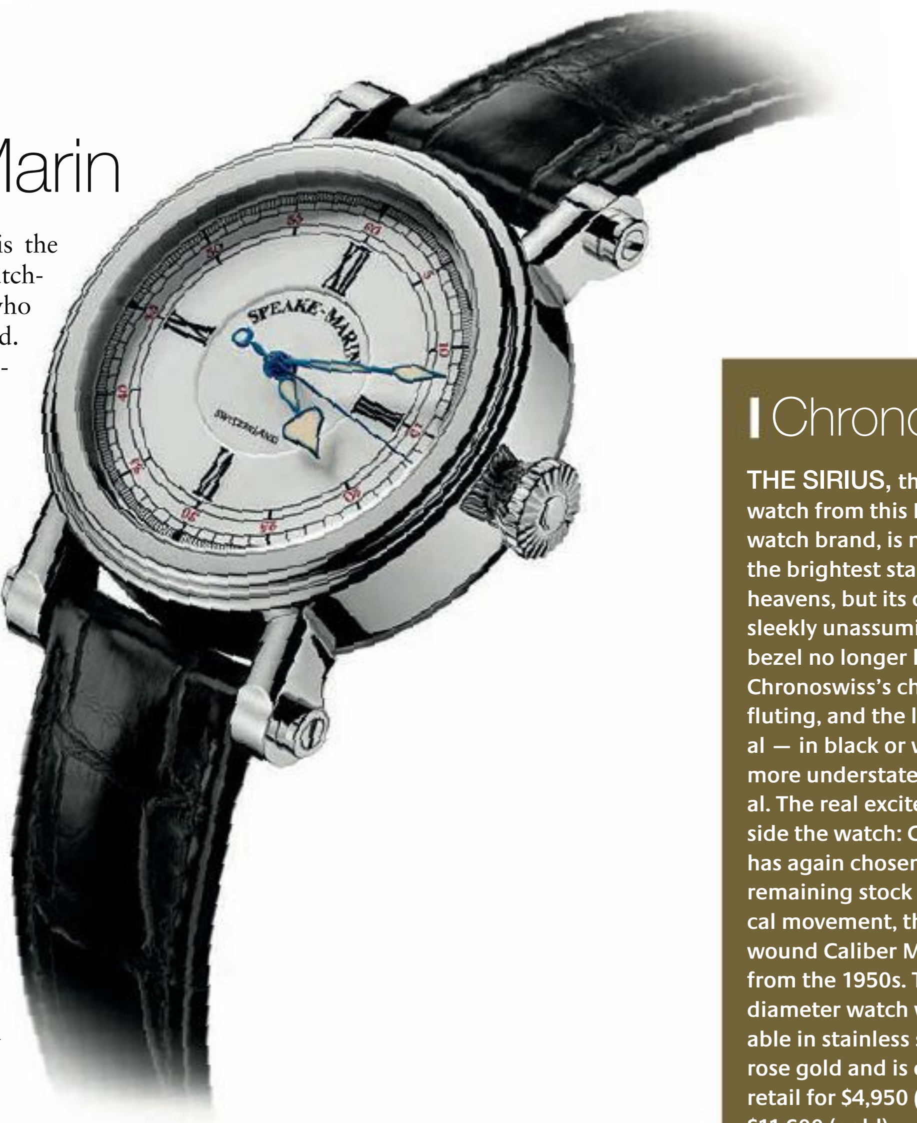
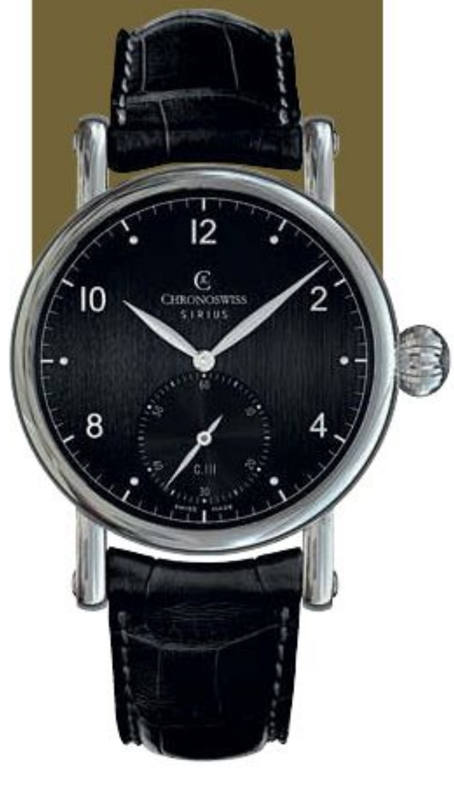
Speake-Marin



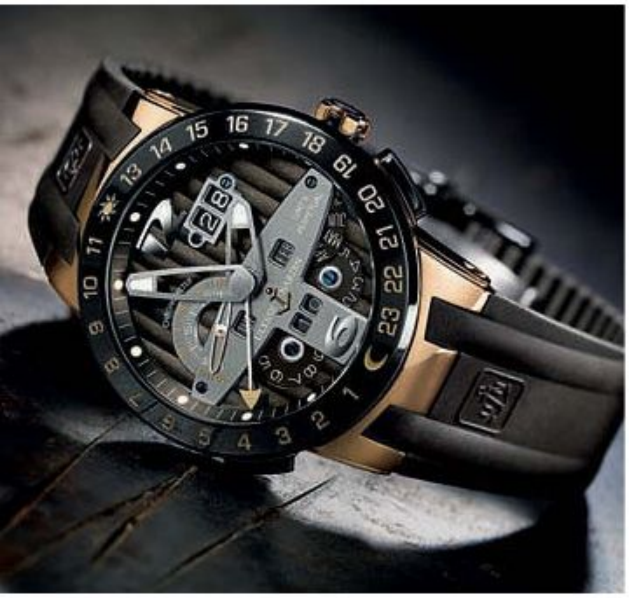
THE NEW MARIN-1 model is the brainchild of the English watchmaker Peter Speake-Marin, who lives and works in Switzerland. This timepiece combines a classically simple design with playful elements. The principal eye-catchers are the heart-shaped tips on the hour and minute hands. The 42-mm-diameter case is crafted from polished titanium. The partly angular and partly rounded lugs boast big screws to attach the crosspieces for the bracelet. Inside the case is the automatic *manufacture* Caliber SM2. The rotor has arc-shaped apertures, the bridges are made of nickel silver, and the balance has weight screws attached to its rim. Handcraftsmanship and an in-house movement are not cheap: the price of this new creation is $34,000.

Chronoswiss

THE SIRIUS, the newest watch from this Bavarian watch brand, is named after the brightest star in the heavens, but its design is sleekly unassuming. The bezel no longer has Chronoswiss's characteristic fluting, and the lacquered dial — in black or white — is more understated than usual. The real excitement is inside the watch: Chronoswiss has again chosen to use the remaining stock of a historical movement, the hand-wound Caliber Marvin 700 from the 1950s. The 40-mm-diameter watch will be available in stainless steel and rose gold and is expected to retail for $4,950 (steel) and $11,600 (gold).



Ulysse Nardin



THIS BRAND'S USER-FRIENDLY perpetual calendar is now in a new model, christened **El Toro**. The automatic *manufacture* Caliber UN-32 (with a COSC chronometer certificate) now ticks beneath a black ceramic bezel inside a 43-mm-diameter case of rose gold or platinum. The calendar displays (except for the big date) are on visible disks and held together by a T-shaped dial bridge. As in the previous version, the watch also features a 24-hour hand. A patented quick-switching mechanism with two buttons can be reset either forward or backward to show the time in a second zone. There will be 500 pieces in rose gold ($49,800) and 500 in platinum ($59,800)

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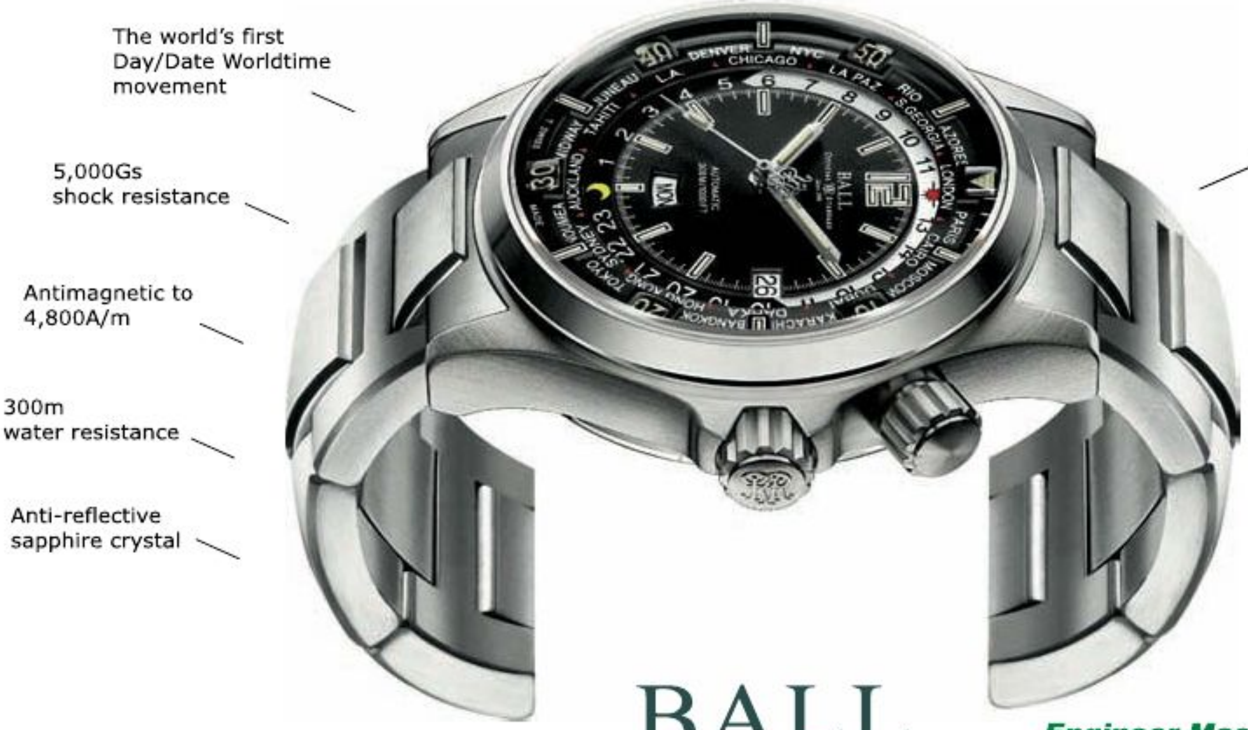
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Staffords Centerville, OH | **Russell Korman** Austin, TX | **Robert Lance** Lubbock, TX | **Keller & George** Charlottesville, VA

Hermès

THIS YEAR'S VERSION of Hermes's Clipper chronograph, powered by an ETA/Valjoux 7750 movement, has larger counters for the elapsed minutes and hours, a broader date window, several orange-colored elements, and a color-coordinated rubber strap. Wearers will appreciate the brand's familiar folding clasp, which is combined with a pronged buckle to make adjusting the length of the strap easy. The Parisian luxury brand produces this watch in Switzerland. It retails for $5,950.

Bulgari

INTRODUCED in 2008, Bulgari's **Chronograph Diagono Calibro 303** is now available in a version that adds colorful blue dial accents and a blue alligator-leather strap. The hands and indices are still rose-gold colored, and the bezel, with the famous "Bvlgari Bvlgari" insignia, is made of white gold. The case is stainless steel, including the elaborately shaped lugs and the knurled push-pieces. This 42-mm-diameter watch uses a *manufacture* automatic caliber with 303 individual components. The price is $10,900.

Frédérique Constant

HEADQUARTERED in Plan-les-Ouates, a suburb of Geneva, Frédérique Constant is a young *manufacture* that's known for its products' favorable cost-benefit ratio. The automatic model in its entry-level **Junior** line sells for a mere $725, which isn't enough to get you one of the brand's in-house calibers, but will buy a watch with a trusty ETA 2824, which is contained inside a 38-mm-diameter stainless-steel case. A little viewing window in the caseback allows the owner to admire the escapement. Would-be purchasers who visit the www.junior.frederique-constant.com Web site can design their own customized engraving for the caseback for a small added charge.

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Glashütte Original

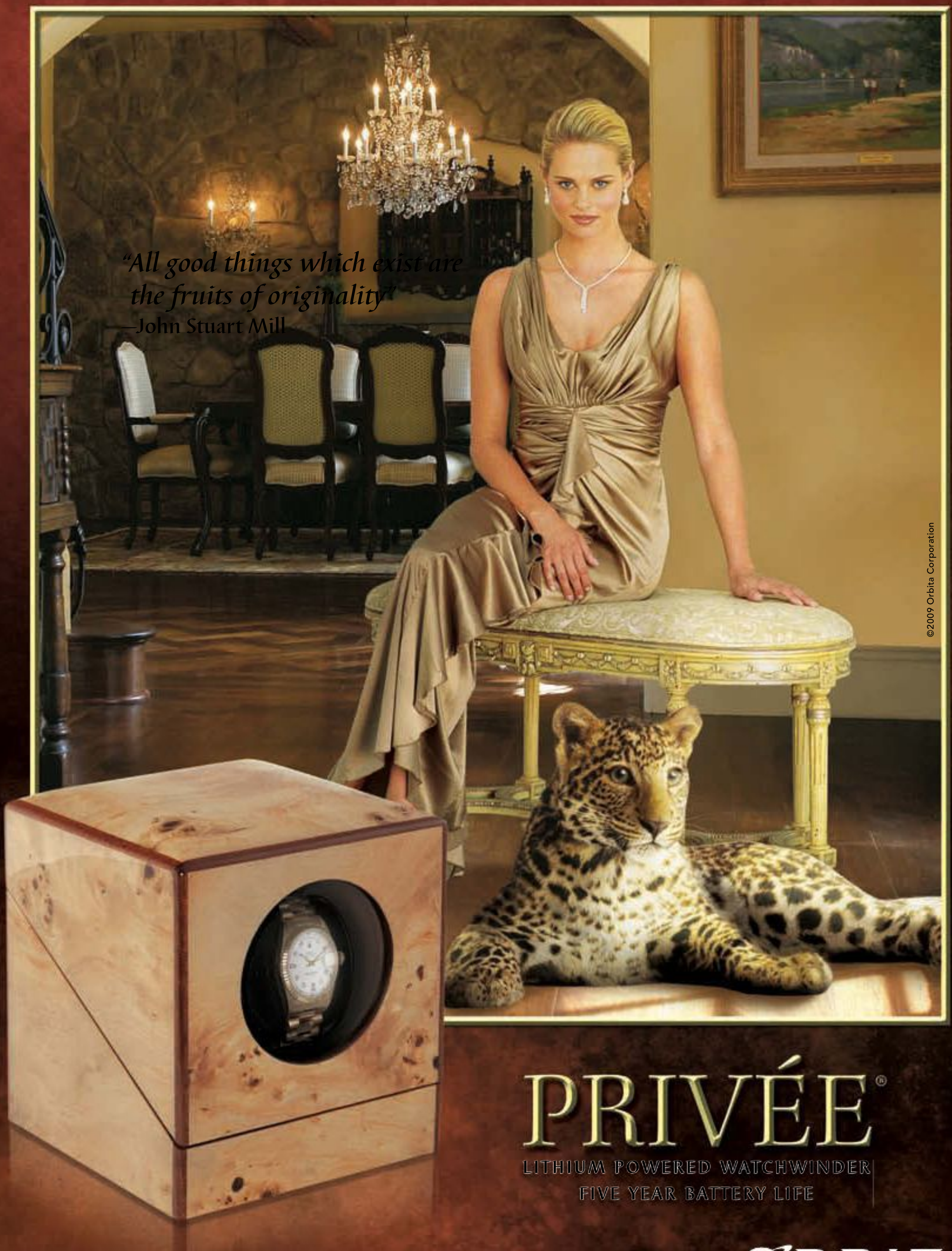
FANS OF THIS GERMAN *manufacture* who have been waiting for a panorama date display to be included in one of its Senator Sixties models can rejoice: the **Senator Sixties Panorama Date** now boasts the brand's trademark big date, displayed on two disks at 6 o'clock. The model includes the other distinguishing characteristics of the Senator line, including the curved dial, curved hands, engraved hour indices, distinctive typography, and a highly domed back offering lateral views into the movement. This stainless-steel watch is available either with a silver-colored dial and rose-gold hands or with a black face and silver-colored hands. Each sells for $8,800.

DeWitt

THE NEW TWENTY-8-EIGHT collection from DeWitt derives its name from two sources: the date (August 28) that its design was committed to paper and the date (28 Floréal of the French republican calendar) that Napoleon Bonaparte was crowned emperor of France. (Napoleon is an ancestor of the brand's founder, Jerôme de Witt.) The series is intended as a more classical, streamlined version of DeWitt's Academia line, with the cases slightly thinner and bearing a more discreet version of the Academia's trademark Imperial columns motif on their flanks. The first model in the line, the Twenty-8-Eight Automatic, features a black dial divided into two guilloché zones (light flame pattern in the center, sunrays on the outside), with four Roman numerals at the four cardinal points. The case is rose gold and 43 mm in diameter. The open-worked hour and minute hands are shaped like swords. The watch sells for $19,800 and comes on a black alligator strap with a rose-gold pin buckle in the shape of DeWitt's "W" logo.

Omega

THE ATELIER that makes complications for Omega's movements, Cellule Haute de Gamme in the Swiss town of Bienne, has turned the already open-hearted central tourbillon into a fully skeletonized watch. The result bears the lengthy name **Skeletonized Tourbillon Co-Axial Platinum Limited Edition**, of which only 18 pieces will be made. The technical characteristics remain the same: tourbillon cage in the middle, co-axial escapement, "mysterious" hands on sapphire disks, and COSC certification. The principal new features are pierced bridges and a rotor with a sapphire plate into which the individual serial numbers are etched. As with the existing Omega central tourbillon, each watch is fully assembled by a single watchmaker, whose initials are engraved on the underside of the tourbillon and who provides servicing and maintenance if necessary. The price has not yet been determined.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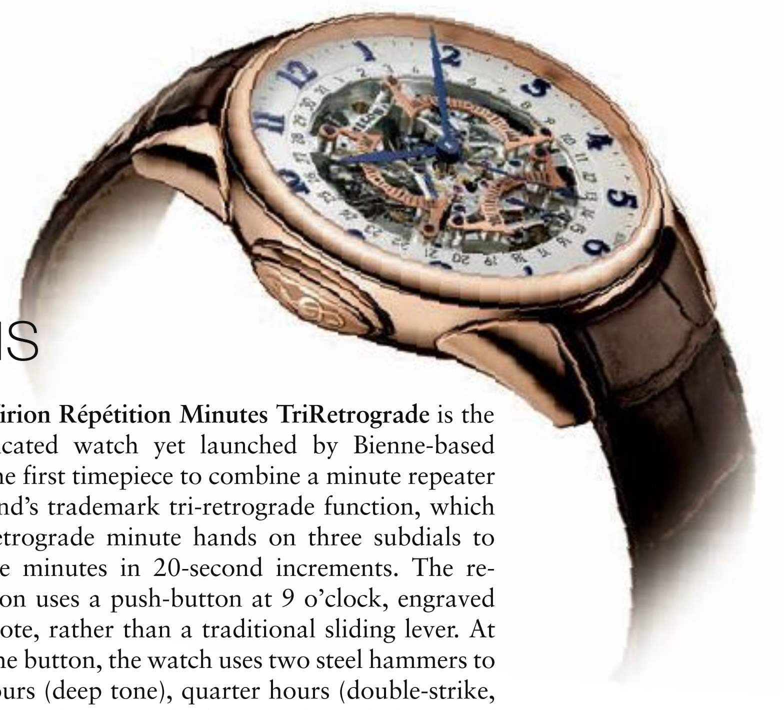

Milus

THE NEW **Tirion Répétition Minutes TriRetrograde** is the most complicated watch yet launched by Bienne-based Milus. It is the first timepiece to combine a minute repeater with the brand's trademark tri-retrograde function, which uses three retrograde minute hands on three subdials to count off the minutes in 20-second increments. The repeater function uses a push-button at 9 o'clock, engraved with a clef note, rather than a traditional sliding lever. At the push of the button, the watch uses two steel hammers to chime the hours (deep tone), quarter hours (double-strike, high and deep) and minutes (high tone); through the crystal exhibition caseback, you can see the flywheel that regulates the chiming mechanism. The proprietary movement, Caliber M08-35RM, is COSC-certified, hand-decorated and composed of over 400 parts. The nine-part gold case measures 46 mm in diameter, and comes on a hand-sewn alligator leather strap. The watch, a limited edition of 50 pieces in either white or rose gold, costs $260,000.

Anonimo

THIS BRAND, whose name in Italian means "anonymous," is a bit less so these days: as of 2010, for the first time, the Anonimo brand name will be included on all its watches' dials, along with the stylized "A" logo that graced them previously. Among the new models for 2010 is the all-black **Cronoscopio Mark II Nero**, an automatic chronograph with an ETA 7750 movement ticking inside a sandblasted, stainless-steel 43-mm case treated with the special Ox-Pro blackening process. The process aids in resisting corrosion and makes the case surface nonreflective. The watch's bezel, caseback, crown and push-buttons are all screw-locked. Its domed sapphire crystal is darkened by an internal chrome coating. The watch has a telemeter scale on its dial, and luminous coating on the numerals and indices. It is water-resistant to 200 meters and comes on a waterproof rubber strap. The price is $6,510.

Dior

FOR ITS LATEST foray into complicated watchmaking, Dior brought in Franck Orny and Johnny Girardin, the men behind the Montblanc Metamorphosis, one of the most buzzed-about watches at the SIHH in Geneva. Their creation, the proprietary caliber Dior 8 Fuseaux Horaires, powers the new **Chiffre Rouge T01** watch. Dior says that its patented movement is the only one able to show time in both a 12-hour and 24-hour format using the same index. It uses a single crown at 5 o'clock to correct both the local time and additional time zones, making it distinct from other multi-time-zone watches, which customarily use two. It also allows an easy reading of day and night for the eight time zones indicated. The other special feature is the moving dial, which makes a full rotation every 12 hours, while the eight-time-zone subdial, a satellite on its own rotating plate, traverses the dial once every 24 hours. The case is steel with a translucent black sapphire caseback; the bezel is matte black ceramic. A limited edition of 100 pieces, it sells for $7,350.

Bremont

THIS NEW MODEL from the aviation-themed Bremont brand pays homage to the world record achieved in 1931 by British Flight Lieutenant George Stainforth. That year, flying a Supermarine S6b seaplane in the Schneider Trophy series of seaplane races in Britain, he reached a speed of 407.5 mph, faster than anyone had ever flown a plane. The watch, called the **Supermarine Descent**, is being manufactured in a limited series of 407 pieces. It has a COSC-certified automatic movement protected from magnetism by a Faraday cage. The movement is set in a special mount to give it added shock-resistance. The case, 42 mm in diameter and coated with a black PVD finish, is water-resistant to 500 meters and has an automatic helium release valve. There is a curved crown protector below the crown. The bezel is made of transparent sapphire, which covers numerals coated with Super-LumiNova. The crystal is also made of sapphire, and has nine layers of nonreflective coating. The watch comes with the rubber strap shown here ($5,450) or with a black bracelet ($5,850).

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Equipe

THE NEW Equipe brand harks back to Detroit's golden age of the 1950s and '60s. Each of the brand's collections — there are 15 in all — was inspired by a particular car feature or component. They bear names like Bumper, Chassis, Hub and Headlight. The watch shown here ($599), a chronograph, is from the **Spring** collection; the metal coils at the case corners are meant to evoke the springs in a car's suspension system. The dial resembles a dashboard: the chrono subdials look like a speedometer and tachymeter. The hands are luminous; the crystal is made of hardened mineral glass and is glare-resistant. All Equipe (pronounced *"ee-QUIP"*) watches have quartz Miyota movements and are water-resistant to 100 meters. The watch comes in a toolbox-inspired presentation box.

Concord

THIS NEW VERSION of Concord's C1 chronograph looks old: deliberately so. Its case, made of PVD-coated steel, has undergone a finishing process to give it a timeworn look. It was placed in a vibrating drum with de-burring chips, water and detergent, and kept there for more than two hours. When it came out, it had a matte, slightly eroded surface in keeping with the watch's name, the **C1 Vintage**. The strap, made of leather, has been worked so that it, too, looks well-worn. The watch contains a COSC-certified Valgranges movement. The chronograph counters are at 6 and 12 o'clock. There is a date display at 3 o'clock and the running seconds are shown on a rotating disk at 9 o'clock. The eight black segments on top of the bezel are made of rubber, which also covers the case middle, the pushers and the crown. The case, which is 44 mm wide, is water-resistant to 200 meters and has a transparent back. The crystal is made of sapphire and has a nonreflective coating on both sides. Price: $13,900.

Ball

THE WATCH BRAND that started out on the railroads is now soaring into outer space. Astronaut and Ball Watch endorser Brian Binnie and his planned "Space Tourism" flight in 2011 have inspired the limited-edition (999 pieces) **Engineer Hydrocarbon Spacemaster Orbital**, which Binnie intends to wear on the journey. The watch was built with extreme conditions in mind: in addition to Ball's patented crown-protection system, it features the company's Amortiser shock-resistance system, also patented, which allows the wearer to protect the movement — an ETA 7754 — from impacts by locking the rotor in place with the turning, airplane-propeller-shaped mechanism on the caseback. Like other Ball watches, its dial includes tritium-gas-filled micro tubes — in this case, 52 of them — that provide high luminosity in deep darkness. The 45-mm titanium case can withstand cold temperatures down to minus 40º Celsius and is water-resistant to 100 meters. The watch's functions include a chronograph and a GMT function. The anticipated price is $4,599.

Mido

THE MULTIFORT SPECIAL EDITION chronograph from Mido ($1,830) was inspired by the Streamline style that swept through industrial design in the 1930s. The Geneva stripes on the dial resemble the steel plates on the sides of streamlined American train cars; the bright indices evoke the rivets that held the plates in place. The Multifort collection itself dates back to that era: Mido launched it in 1934, naming it for its resistance to the multiple hazards of water, magnetism and shocks. The movement is based on an ETA 7750. The case, which is 44 mm in diameter, has a black PVD coating and is water-resistant to 100 meters. The caseback is made of mineral glass, which shows off the Geneva stripes on the rotor and the blued screws and circular graining on the bridges. The front crystal is made of sapphire. The indices and hands are coated with orange Super-LumiNova. The watch comes in a special presentation box. ○

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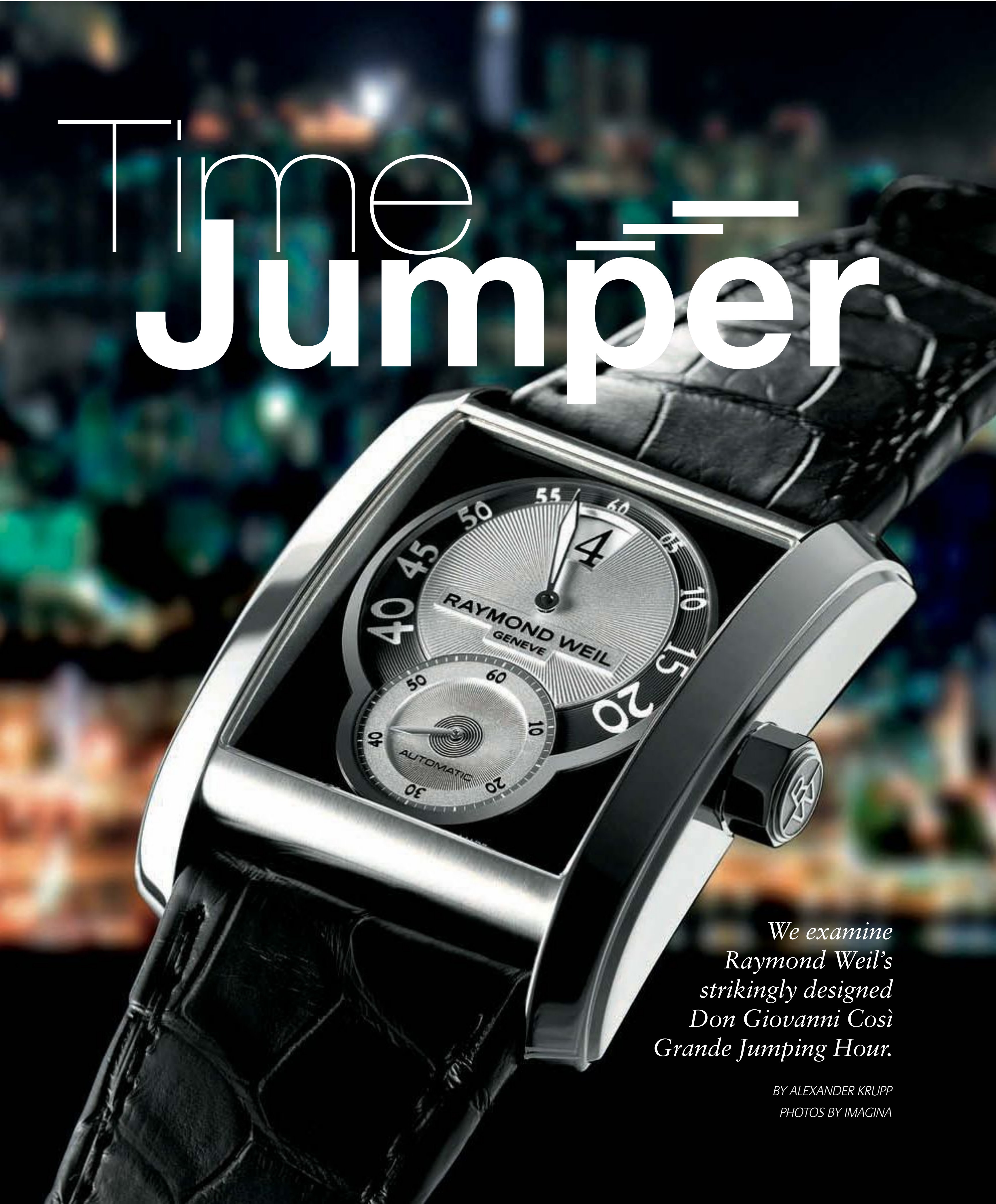


We examine Raymond Weil's strikingly designed Don Giovanni Così Grande Jumping Hour.

BY ALEXANDER KRUPP

PHOTOS BY IMAGINA

The Raymond Weil Don Giovanni Così Grande Jumping Hour is a rectangular watch measuring a generous 50 x 38 mm, with two offset dials and a large aperture for the hour display. Its distinct shapes and lines immediately grab your attention and a closer look reveals many other attractive features. Circular and sunburst patterns set off the dual dials; different levels highlight the dials' centers, frames and outer tracks; and a faceted frame draws the eye to the opening for the jumping-hour display. The slightly different numeral styles on the dials and hour display have similarly curved, organic shapes.

The relatively lightweight stainless-steel case (112 grams) features a double-sided, curved, rectangular sapphire crystal; decorative edges on the flanks of the case; and a large octagonal crown with an embossed brand logo. Aside from the line finish on the sections between the lugs, the extensive surfaces of the case are fully polished — which unfortunately gives the case a rather austere look and easily shows scratches and fingerprints. The rectangular caseback is secured with four screws and its sapphire viewing window is sized to match the dimensions of the movement exactly.

The view of the watch's power drive is quite satisfying. Raymond Weil uses the "Top" version of the automatic ETA 2892 movement, greatly modified by Dubois Dépraz, as the base of its RW 1400 caliber, which shows off its Glucydur balance, côtes de Genève decorative finish, blued screws, gold-colored engraving and perlage. Though it is not visible, the modification of the three-hand movement that's responsible for the three-part display is even more interesting than the decorations. Dubois Dépraz has added an hour disk in addition to modifying the central seconds to a small seconds and shifting the arbor for the minute hand from the center of the movement to the top. Raymond Weil's decision to use the "Top"-quality movement — which, theoretically, runs with a chronometer-like accuracy — was a worthwhile one, at least in the case of our test watch. On the timing machine the watch showed a daily error rate of only +2.8 seconds. Unfortunately, the maximum deviation between the individual positions was relatively high, at +8 seconds.

The movement and dial are clearly the highlights of this striking timepiece, and although the case has its drawbacks, the strap and clasp are also of very high quality. Measuring 28 mm wide at the lugs, the exquisite hand-stitched crocodile strap has fully turned edges and fully glued inner lining. Two conveniently placed releases, located at both bars, enable the wearer to change the strap without tools and without scratching the watch. The simple folding clasp has two deployant buttons and is milled from a single block of steel. It is pleasantly sturdy and attractive, with a large brand logo on the outer bar.

SPECS

RAYMOND WEIL DON GIOVANNI COSÌ GRANDE JUMPING HOUR

Manufacturer: Raymond Weil S.A., Avenue Eugène-Lance 36-38, CH-1211 Geneva, Switzerland

Reference number: DGCG 4400-STC-00268

Functions: Jumping hour, minutes, small seconds; hack mechanism

Movement: RW 14400, derived from ETA 2892 "Top," modified by Dubois Dépraz, automatic; 28,800 vph; 27 jewels; Etachron regulating system with eccentric screw; Incabloc shock absorption; power reserve = 42 hours; diameter = 25.6 mm; height = 5.2 mm

Case: Stainless steel with curved, double-sided nonreflective sapphire crystal; sapphire caseback held in place by four screws, water-resistant to 30 meters

Strap and clasp: Alligator strap with stainless-steel safety folding clasp

Rate results:

(deviation in seconds per day):

Dial up	0
Dial down	+3
Crown up	+3
Crown down	+2
Crown left	+8
Crown right	+1
Greatest deviation:	8
Average deviation	+2.8
Mean amplitude:	
Flat positions	303°
Hanging positions	271°

Dimensions: 50 x 38 mm, height = 12.4 mm, weight 112 g

Variations: With stainless-steel bracelet ($3,895)

Price: $3,750

> *THE MODIFICATION OF THE MOVEMENT THAT'S RESPONSIBLE FOR THE THREE-PART DISPLAY IS EVEN MORE INTERESTING THAN THE DECORATIONS.*

The simple, sturdy folding clasp is as nicely finished as the alligator strap.

Pros

- + Multifaceted dial
- + Technically and visually attractive movement
- + High-quality strap

Cons

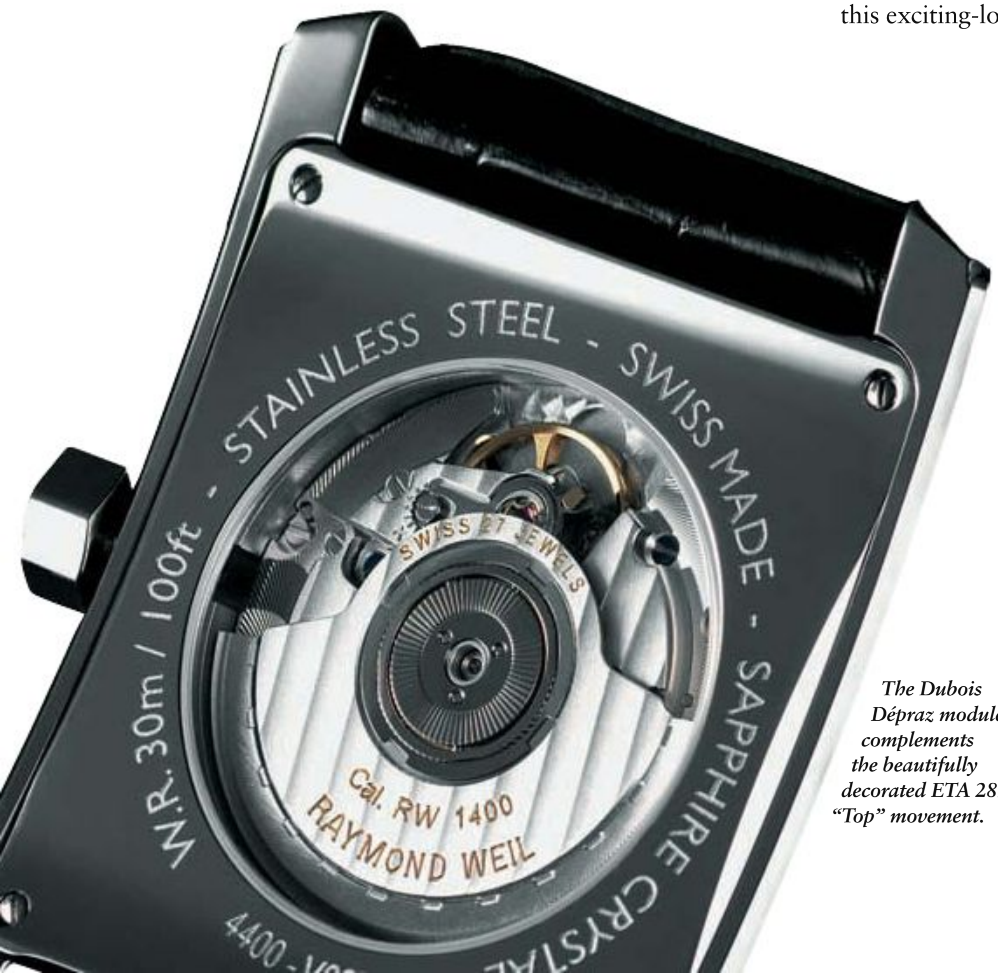
- - Cannot be read precisely
- - Case easily shows fingerprints

Although its finishing is impeccable, the watch loses some points in the comfort category. The extremely wide strap and the heavy folding clasp make the watch less comfortable than other smaller watches with narrower straps and pronged buckles.

Operation is convenient and easy. The crown is recessed in the flank of the watch; it can be easily pulled with a fingernail on the underside of the case and turned smoothly. The hour can be advanced both forward and backward, which makes setting the time simple. When the watch is running, the hour disk jumps suddenly to avoid the appearance of a partial numeral in the window. This is thanks to a well-designed spring mechanism, which also ensures that the disk will not jump unintentionally in either direction if the watch is jolted.

The hour on our test watch jumped one minute too soon, which could result in a false reading of the time by one hour shortly before the full hour. However, this is a minor problem compared to that posed by the widely spaced divisions on the minute track, which aren't conducive to a precise reading of the time. The lower section — the part intersected by the seconds subdial — even lacks five-minute markers. Also, it is possible for the unusual hour display to be obscured by the minute hand, raising the possibility of confusing one o'clock with 11 o'clock. And, of course, the luminescent minute hand is redundant, since the dial itself remains dark and difficult to read in low lighting.

Curiously, the watch's limited legibility is a consequence of its distinctive, jumping-hour design. Certainly there will be plenty of enthusiasts who will be happy to glance at a cell phone or computer for the exact time while still making a statement by wearing this exciting-looking watch. ○



The Dubois Dépraz module complements the beautifully decorated ETA 2892 "Top" movement.

SCORES

RAYMOND WEIL DON GIOVANNI COSÌ GRANDE JUMPING HOUR

Strap and clasp (max. 10 points)	**9**
Operation (5)	**4**
Case (10)	**7**
Design (15)	**13**
Legibility (5)	**2**
Wearing comfort (10)	**7**
Movement (20)	**14**
Rate results (10)	**7**
Overall value (15)	**12**
TOTAL:	**75 points**

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Pros

- + *Manufacture* movement
- + Elegant yet sporty dial design
- + Beautiful case

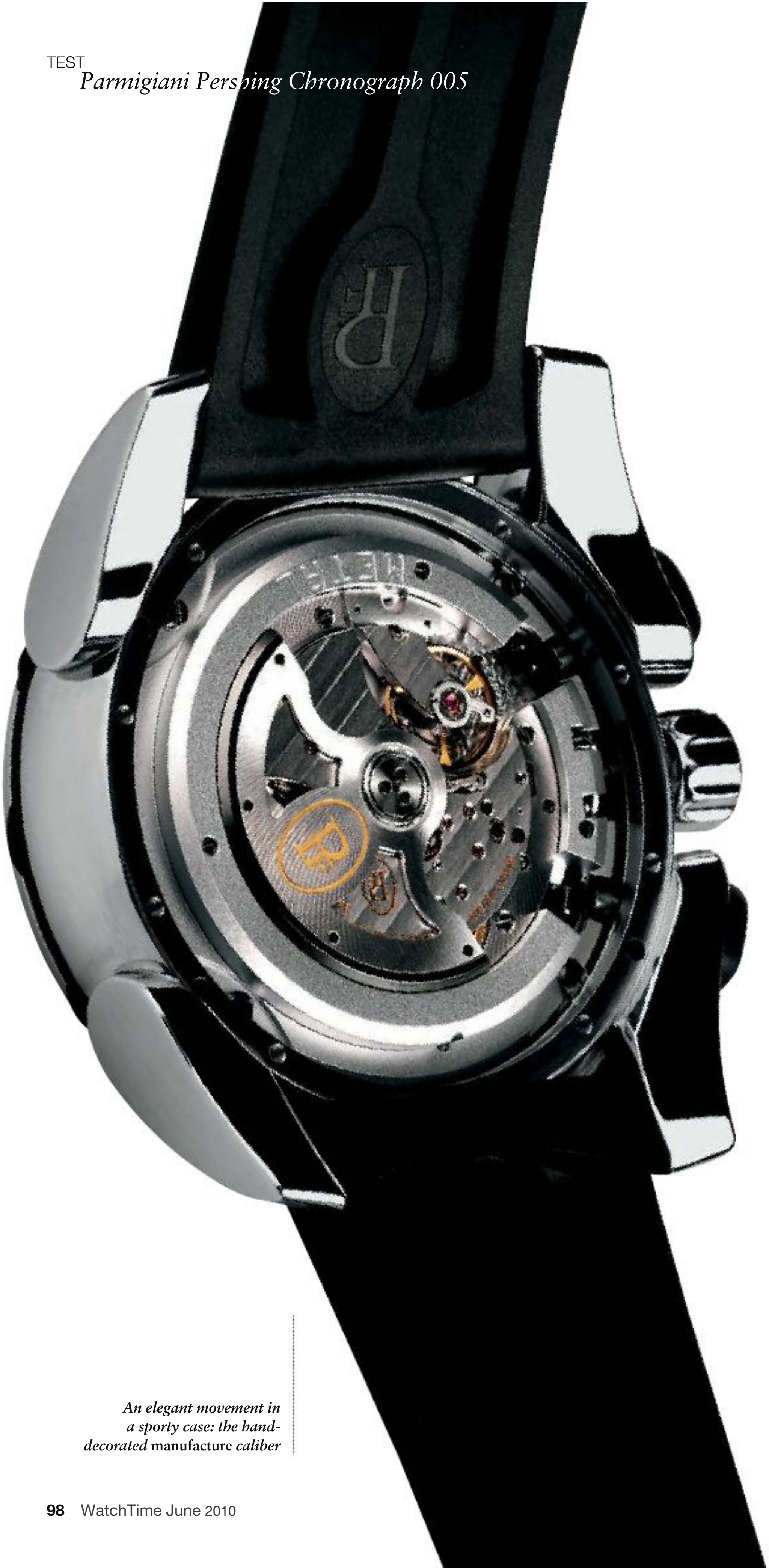
Cons

- − Chronograph is poorly legible in the dark
- − High price

We test Parmigiani's Pershing Chronograph 005, the fruit of the watch brand's partnership with a prestigious Italian yacht builder.

BY JENS KOCH

PHOTOS BY IMAGINA



An elegant movement in a sporty case: the hand-decorated manufacture *caliber*

Until very recently, the small Swiss watch firm Parmigiani, founded by Michel Parmigiani in the Swiss town of Fleurier in 1996, has been known chiefly for the dressy, elegant watches in its Kalpa and Doric lines. Now that it has joined forces with Pershing, the Italian producer of luxury motor yachts, the brand has entered the realm of the modern, sporty timepiece. In addition to the watch we tested, the Pershing Chronograph 005, the Pershing line includes a limited-edition chronograph with a Zenith El Primero movement, as well as a ladies' chronograph and a tourbillon watch. Fans of both the yachts and the watches will find they have several qualities in common: namely, artful craftsmanship, exclusivity, high-quality design and an astute attention to detail.

All Parmigiani's Pershing models are essentially conceived as divers' watches, with metal bracelets or rubber straps, unidirectionally rotating bezels with dive-time scales, and cases that can withstand pressures up to 20 atmospheres (equivalent to the water pressure at a depth of 200 meters). Parmigiani reasons that if a watch can survive a dive, then it's also suitable for wearing aboard a yacht, and if its wearer chooses to go for a swim or take a ride on a jet-ski, he doesn't have to remove his watch.

The dial design, however, includes several elements atypical of a standard divers' watch. The numerals' modern typography is inspired by that of the Pershing 115, that company's flagship 35-meter boat that reaches speeds of up to 100 km/hour. The rubber elements, such as those on the bezel, and the anthracite-colored dial with its pale chronograph counters, also add a distinctively sporty style. And yet, a connoisseur can still instantly recognize the presence of Parmigiani DNA in the deltoid hands and, especially, in the droplet-shaped lugs that are a hallmark of the Kalpa line.

Parmigiani's attention to detail is evident in the dial, which is adorned with Geneva waves, and in the chronograph counters, surrounded by both an outer and an inner ring. The window for the date display wasn't merely stamped out, but milled at an angle from the subdial.

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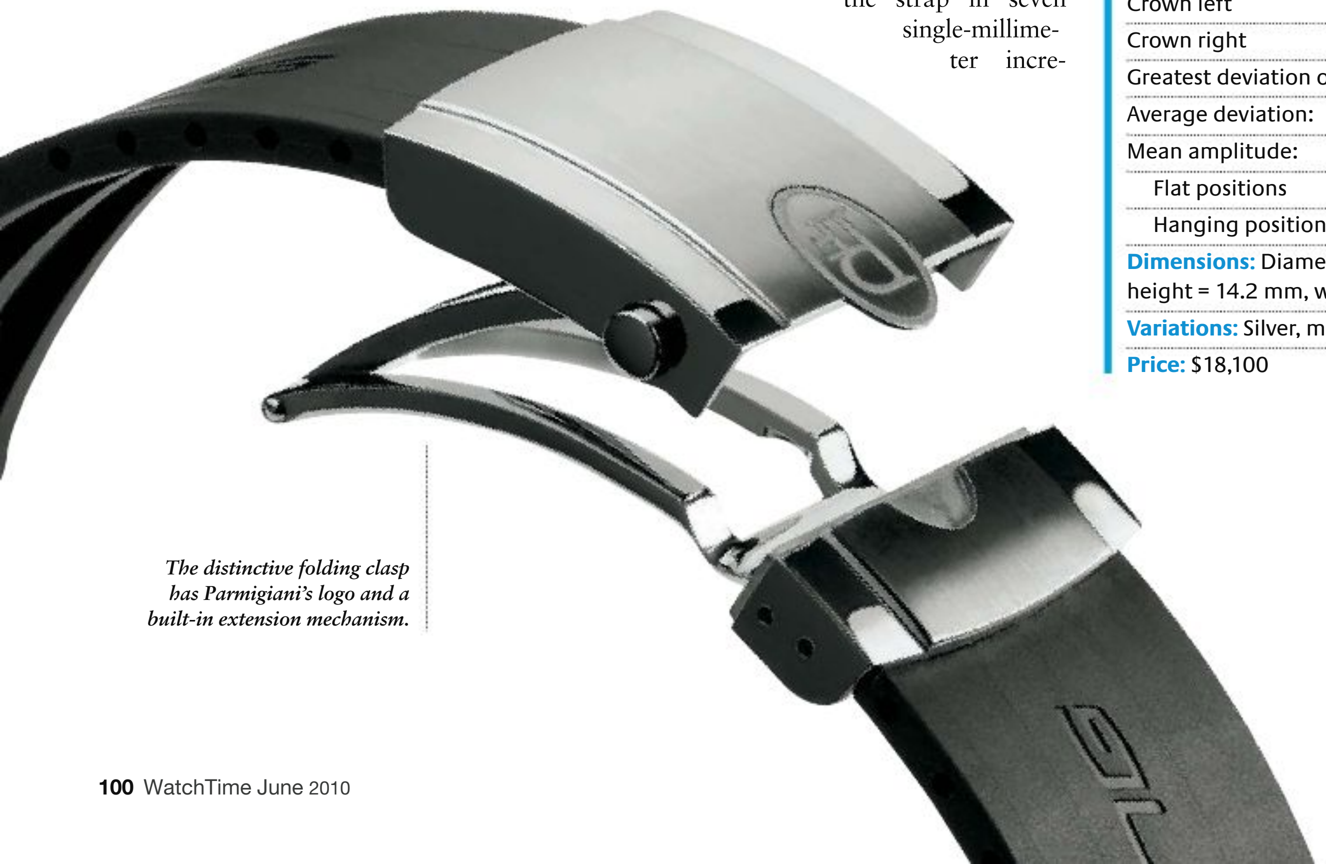
PARMIGIANI IS PART of the MHF Group of companies owned by Switzerland's Sandoz Family Foundation. The foundation supports entrepreneurship and traditional Swiss crafts like watchmaking; over the past decade it has created a vertically integrated group of watch companies, employing 450 people. Parmigiani, the group's only brand, relies on the expertise of its fellow MHF (for *Manufactures Horlogères de la Fondation*) group companies. Dials are made by Quadrance et Habillage in Fleurier. The group also includes the Bruno Altoffer firm in La Chaux-de-Fonds, which specializes in the development and manufacture of cases for luxury watches and did beautiful work on the Pershing chronograph. The integrated bezel is an especially attractive detail: rather than looking as though it had been added as an afterthought, it gives the impression that you could rotate the entire upper third of the case. The harmonious transition between the case and the bezel (the latter continues the curvature of the former) and the excellent fit of the slightly domed sapphire crystal, which is level with the bezel, helps to reinforce the illusion.

The rubber-coated oval push-pieces are also elaborately crafted, and the caseback, which is held in place by eight screws, is adorned with a milled depiction of the Pershing 90 yacht in raised relief. The satin-finished bezel serves as an attractive counterweight to the otherwise polished case. The quality of the polishing and the processing is very fine throughout.

The rubber strap has a clever design, with grooves on the inner side to avoid large areas of rubber making contact with the wearer's wrist. This helps to prevent the profuse sweating caused by many other rubber watch straps. The outer side of the strap is the only area where the Pershing insignia is visible, and its striped texture, similar to the waves on the dial, recalls the teakwood from which Pershing yachts are built.

The folding clasp with twin safety buttons is a good match for this watch. The height and satin finishing of the clasp's middle piece add an attractive accent and help to distinguish it from its polished outer portions. The milled, oval Parmigiani logo cleverly extends beyond the line where the two parts of the clasp meet. The clasp also conceals a practical and speedy length-adjustment mechanism that enables the wearer to lengthen the strap in seven single-millimeter incre-



The distinctive folding clasp has Parmigiani's logo and a built-in extension mechanism.

SPECS

PARMIGIANI PERSHING CHRONOGRAPH 005

Manufacturer: Parmigiani Fleurier S.A., Rue du Temple 11, CH-2114 Fleurier, Switzerland

Reference number: PF 601396.06

Functions: Hours, minutes, seconds; chronograph tallies elapsed seconds, 30 elapsed minutes and 12 elapsed hours; unidirectionally rotating divers' bezel

Movement: Parmigiani PF 334, automatic; 28,800 vph; 68 jewels; Incabloc shock absorption; fine adjustment via screw and index; Glucydur balance; column-wheel chronograph; two barrels; 50-hour power reserve; diameter = 30 mm; height = 6.8 mm

Case: Stainless steel, nonreflective sapphire crystal, caseback held in place by eight screws, water-resistant to 200 meters

Strap and clasp: Rubber strap, stainless steel folding clasp

Rate results:

(Deviations in seconds per 24 hours, without/with chronograph switched on)

Dial up	+2	+3
Dial down	+2	+2
Crown up	+1	−1
Crown down	−1	−2
Crown left	−1	−2
Crown right	0	0
Greatest deviation of rate:	3	5
Average deviation:	+0.5	0
Mean amplitude:		
Flat positions	285°	253°
Hanging positions	254°	215°

Dimensions: Diameter = 45 mm, height = 14.2 mm, weight = 158 grams

Variations: Silver, metallic blue or red dial

Price: $18,100

ments. The clasp is neatly processed, although its quality isn't quite as high that of the case. The Pershing is very comfortable on the wrist: nothing pinches or pokes, and the weight is noticeable, but not at annoyingly so. Unlike many other divers' watches' bezels, this rounded one never snags on a shirt cuff.

OPERATING THE PERSHING chronograph is also trouble-free: the rubber-coated push-pieces offer just the right amount of resistance; the screwed crown is easy to grasp and turn. A quick-reset mechanism makes resetting the date display easy and a stop-seconds function makes it just as simple to set the time with to-the-second precision.

The Pershing is not recommended as a functional divers' watch; legibility was obviously not given the highest priority by the dial designers. The time is easy to read, day or night, thanks to the broad hour hand and minute hand, both of which are amply coated with luminous material, but you'll need good lighting to read the chronograph's slim elapsed-time hands. The watch's tachymeter scale would be useful for divers, though they would be wise to bring along a separate bathymeter on their dives. After measuring the amount of time required to ascend three meters, the hand points to the position along the calibrated scale that corresponds to the speed of the diver's ascent in meters per minute. The scale is very tiny, so this feature really isn't designed for underwater use.

MORE IMPORTANT to most prospective buyers is the accuracy of the watch's rate, and our wrist test showed that the Pershing keeps time with outstanding precision: it gained a mere one second per day. Our timing machine measured similarly excellent results: the deviations in the various positions ranged between +2 and –1 second. However, we found that the chronograph mechanism saps a substantial amount of the energy available to power the movement: when it was switched on, the balance's amplitude declined to 210°.

This dip could be due to fact that the self-winding Caliber PF 334 is a modular construction: the fine Parmigiani *manufacture* movement PF 331 is combined with one of Dubois Dépraz's exclusive chronograph modules with a column wheel. The base movement is 25.6 millimeters in diameter, noticeably smaller than the 30-mm-wide module. There are 68 jewels in the assembled movement — an incredibly large number. This is because numerous wheels pivot in jeweled bearings, each of which helps to reduce the amount of energy required to keep all those wheels turning. The two barrels amass a 50-hour power reserve.

The Pershing 90 luxury yacht is depicted on the watch's steel caseback.

The elaborate decorations given to the movement remind the wearer of Parmigiani's reputation for elegance. The plates are made of nickel silver and have manually beveled edges, the rotor is skeletonized, and the heads of the screws are polished. The steel parts are brushed, and the plates are adorned with Geneva waves. All that's missing from a watch in this price range is a shudder-free fine-adjustment mechanism via eccentric weights along the rim of the balance, which would allow the balance to "breathe" freely.

Parmigiani movements are manufactured by Vaucher Manufacture Fleurier, a sister company in Sandoz's MHF group. Thanks to Vaucher and other group firms, like Atokalpa, which manufactures all the wheels, the barrels, the anchor, the screws and even the balance and balance spring at its home in a tiny hamlet in the Swiss Jura region — Parmigiani is 90 percent vertically integrated as a *manufacture*.

Parmigiani has priced the Pershing Chronograph at a level to ensure its exclusivity: $18,100 is expensive for a steel wristwatch. However, the costs of development and toolmaking, which must be financed by a relatively small number of watches produced, at least partially justify the steep price. ○

SCORES

PARMIGIANI PERSHING CHRONOGRAPH 005

Strap and clasp (max. 10 points): Grooves in the rubber strap reduce perspiration; the attractive folding clasp is equipped with a quick-adjustment mechanism. **8**

Operation (5): Smoothly running push-pieces and an easy-to-grip crown, a rotating bezel that clicks neatly into its many positions, a quick-reset mechanism for the date display and a stop-seconds function all make a good impression. **5**

Case (10): Elaborately constructed case, integrated rotating bezel without undue play but with rubber elements; the lugs are beautiful, but traces of soldering are faintly discernible. **8**

Design (15): The Pershing's styling is modern and sporty, with a distinct character; Parmigiani has obviously spared no expenses and cut no corners. **14**

Legibility (5): The wide hour hand and minute hand with ample luminous material are easily legible, but the elapsed-seconds hand doesn't contrast enough with the dial beneath it. **4**

Wearing comfort (10): The generous downward curvature of the lugs, the rubber strap, and above all the clasp, with its speedy length-adjustment option, combine to make wearing this timepiece quite comfortable, despite its large size. **9**

Movement (20): A fine and beautifully embellished *manufacture* movement animates a chronograph module from Dubois Dépraz. **16**

Rate results (10): Well adjusted with a slight gain and with very minor deviations among the various positions; the amplitude declines significantly when the chronograph mechanism is working. **8**

Overall value (15): Exclusivity has its price, as does quality, but this watch's price is still rather high. **11**

TOTAL: 83 POINTS

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For any questions please email our event coordinator Amy Bernstein, abernstein@watchtime.com.

On a rare tour of Rolex's movement-manufacturing complex, WatchTime witnesses the making of the Cosmograph Daytona Caliber 4130.

BY NORMA BUCHANAN

Inside Rolex Bienne

The first thing that strikes you is its sheer size. The Rolex movement-making complex, on the outskirts of Bienne, Switzerland, is a study in gigantism. It consists of four monolithic buildings, occupying 170,000 cubic meters of space. It's imposing, and, with its air of impregnability, a little mysterious.

We ride out there one February afternoon because Rolex has agreed to give us, two *WatchTime* editors, a tour of the facility, a mainplate-to-hairspring view of how it makes its movements, 750,000-plus of them per year.

Before the tour, we receive a background briefing, a combination of live presentation and film. It takes place in a proportionately large auditorium attached to what is surely the biggest watch-company reception area we've ever been in: a two-story-high, light-filled atrium with a Rolex-green marble floor.

This complex, Manufacture des Montres Rolex SA, located in an industrial zone called Champs-de-Boujean, is the sister of Rolex SA in Geneva, which makes cases, bracelets and dials; assembles the watches; and does the company's gem-setting. Rolex corporate headquarters are also in Geneva. (See "Inside Rolex" in *WatchTime's* July-August 2006 issue.)

Here in Bienne, about 2,000 employees make movement components, 50 million of them per year, assemble the movements, and send them to Switzerland's chronometer-testing agency, COSC (Contrôle Officiel Suisse des Chronomètres) to receive chronometer certification. (All Rolex-made movements receive certification except for most in the Cellini collection — although Cellini Prince models are COSC-certified.) Rolex Bienne then ships the movements to Rolex Geneva for casing. The four Bienne buildings, set against the backdrop of the Jura mountains, are called Rolex III, IV, V and VI. (Rolex I and II are old, former factory buildings near the center of Bienne. Rolex no longer owns them.) The company also has a factory in the town of Le Locle, em-

IN BIENNE, ROLEX MAKES COMPONENTS AND ASSEMBLES THEM INTO MOVEMENTS THAT ARE SHIPPED TO ROLEX GENEVA FOR CASING.

The Cosmograph Daytona Caliber 4130, introduced in 2000

Components are made by machine and assembled by hand.

ploying 150 people, where some movement assembly takes place.

Until 2004, Rolex Bienne and Rolex Geneva had different owners. The former belonged to the descendants of Jean Aegler, whose Aegler SA factory in Bienne provided movements to Rolex founder Hans Wilsdorf starting in 1905. (For more on the history of Rolex Bienne, see "The Bienne Connection" sidebar). Rolex Geneva was, and still is, owned by the Hans Wilsdorf Foundation, which Wilsdorf established in 1945.

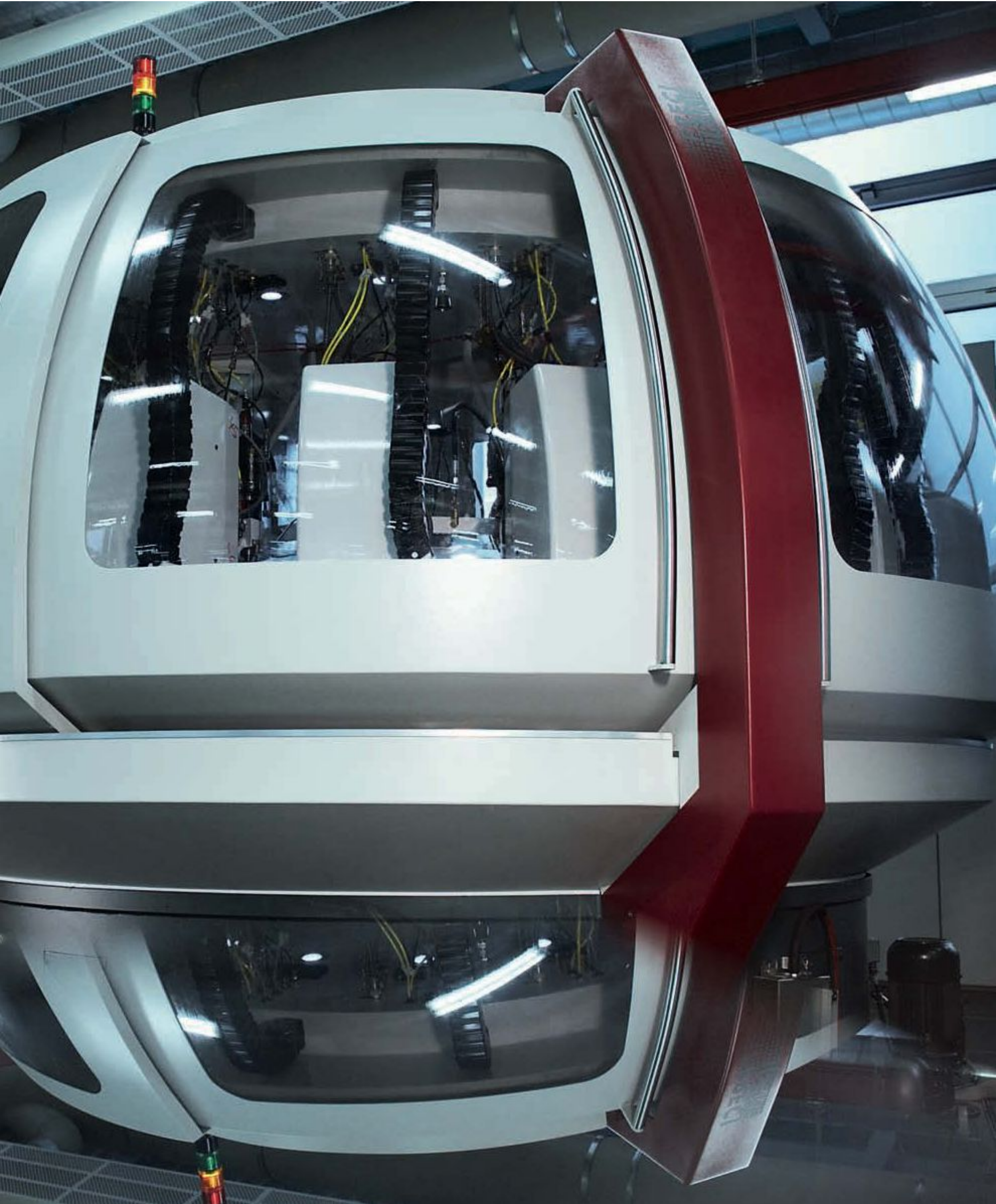
Six years ago, Rolex Geneva bought the Bienne facility and the two were merged. That move, along with Rolex's long-term project of acquiring many of its suppliers of components and equipment, has transformed the company into a vertically integrated *manufacture*.

CLASS OVER, we set out on the tour. It will have a theme, says François Paschoud, one of the facility's technical directors: We will be following the manufacturing steps of Rolex's famous Caliber 4130, the chronograph movement that Rolex launched in 2000 to replace the Zenith El Primero caliber it had been using in its Cosmograph Daytona models. That introduction was a major event for Rolex; it meant that from that point on all movements used in the Rolex brand were made in-house (watches in Rolex's sister brand, Tudor, have ETA movements).

Besides Paschoud, our guides on the tour are the facility's top manager, Raymond Kerrison, and Jacques Baur, head of research at Rolex.

We start in Rolex V, in the department where the movement's plates and bridges are made. There, in a huge room filled with the roar of toiling machines, we see something — or rather some things — we've never seen before. They look like giant, round, glass pods, or maybe spaceships, nearly as high as the ceiling and 12 feet or so in diameter. The Rolex officials call them "modules." There are a dozen of them, some connected at the top to an adjacent module by metal rails, which, we soon learn, are a kind of monorail transit system for carrying components from one module to the next. Four of the modules are dedicated to the 4130. Inside

Plates and bridges are manufactured by CNC machines inside huge, pod-like modules.



each one, a cluster of CNC machines are stamping, drilling, milling, turning and polishing the plates, the rough forms of which were produced, by the stamping process, in another department. We can see almost none of the actual work from outside the modules; the machines have their backs turned to us, as it were, and are facing inside. What we do see is oil, gallons and gallons of it, which is squirted on the plates and bridges to lubricate them during manufacturing and to rinse off metal shavings.

To see the actual processes, such as milling and stamping holes in the plates, we watch a movie on a video monitor. There are more than 50 tools working simultaneously in the four modules. Humans are far scarcer in this room: just one or two are needed to keep the noisy machines humming.

The modules are made exclusively for Rolex by a Rolex-owned company. They serve several purposes. Most obviously, they contain the oil that would otherwise be knee-deep on the factory floor. They also protect the components and machinery from dust. Thirdly, they keep the components at the same precise temperature throughout the manufacturing process so they will neither shrink nor expand. Any such change, however small, would have disastrous consequences given the tolerances involved: two microns, that is, two thousandths of a millimeter, or, as Paschoud says, a few hundredths of the diameter of a human hair.

When one module completes its work, the plate or bridge moves to the next module by means of the monorail. Each component is mounted on its own small pallet. Human hands never touch the component during this phase of production. The entire process consists of about 100 different steps. (Some are performed next door, in Rolex III.) There are some 350 points of measurement for each plate.

Leaving the department, we pass the quality control section where, helped by precision measuring equipment and magnifying lenses, employees in two separate departments check the plates and bridges to be sure they have exactly the right measurements and are free of any surface flaws. They work behind a glass partition in a controlled environment. That, Paschoud tells us, is because a temperature change of as little as 1 degree can affect a component's measurements.

If the plates and bridges pass muster, they are sent to another department for rhodium galvanic coating and decoration: circular graining, for instance.

IN 2004, ROLEX BIENNE MERGED WITH ROLEX GENEVA TO FORM A VERTICALLY INTEGRATED MANUFACTURE.

WE THEN WALK through an underground passageway connecting Rolex V to Rolex IV, where small components such as staffs, wheels (including balance

Rolex V is one of the four big buildings in the Bienne complex.

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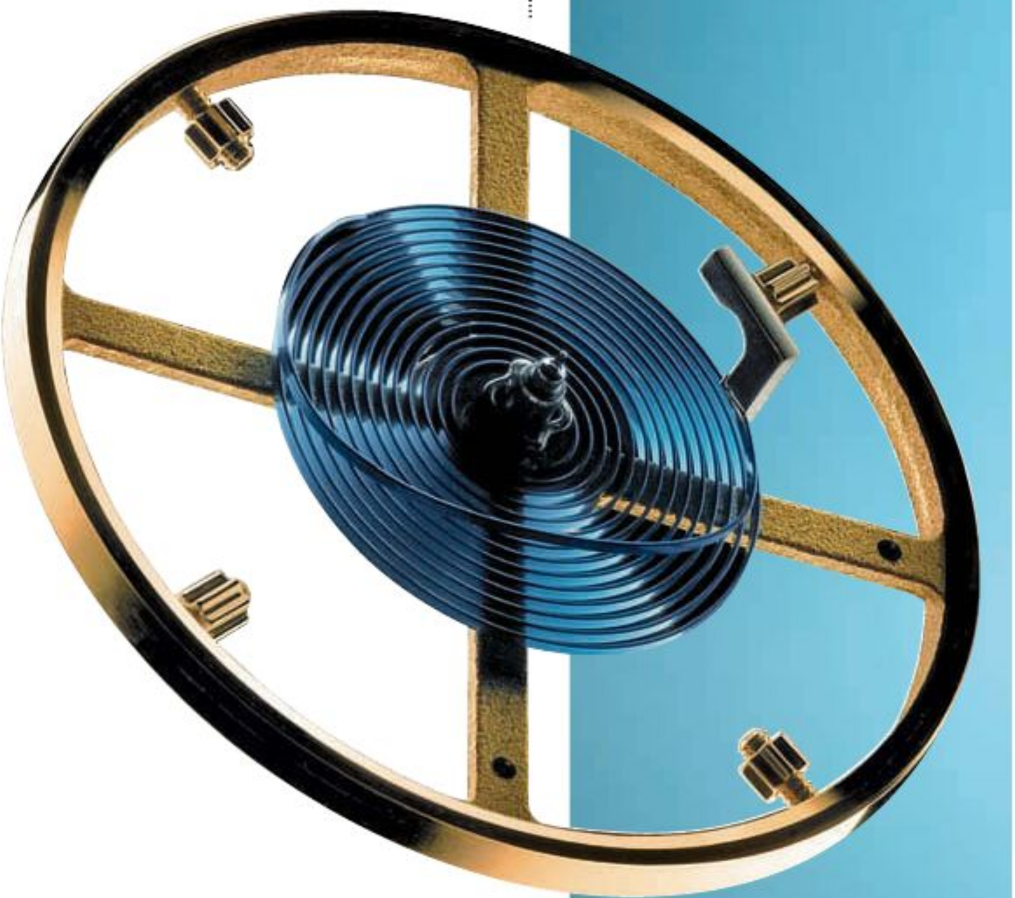
ROLEX INTRODUCED THE PARACHROM HAIRSPRING WHEN IT LAUNCHED THE 4130 MOVEMENT A DECADE AGO.



Rolex balances have gold Microstella screws and Parachrom hairsprings.

wheels), and Microstella screws, which are used to adjust the balance, are made. On the way, we pass a man riding a bicycle (another watch-factory first for us). There are more bikes, special Rolex bikes, with light-colored tires, parked at the elevator in Rolex IV. Employees use them to move quickly between the buildings.

This department's job is to turn bars and tubes of metal, some two meters long, into pieces as small as one millimeter across. Tolerances here are as tiny as two microns. The parts are made by turning, cutting, stamping and spark erosion performed by CNC machines. As in the plates-and-bridges department, much of the work is hidden within the machines. The metal, an alloy of steel, aluminum or copper, goes in one end and, seemingly by magic, comes out the other in the form of infinitesimally small screws (the Microstella screws are made of gold) or tiny wheels. Decoration also takes place here: wheels, for instance, receive a sunray finish.

Our guides show us one machine that is making a pivot for a winding rotor, a component that is still in the testing stage and is hence being produced in a small series. Paschoud pulls out a mechanical drawing of the pivot, which is just 2.5 mm long and 2.2 mm wide, with a diameter of 0.3 mm at its end. It's a simple thing, but the drawing is so complicated, and dotted with so many measurements, you'd think it depicted a nuclear submarine.

ALL THESE COMPONENTS come together in Rolex VI, our next stop, which we reach through another underground passageway. Before we go in, we don disposable white lab coats and blue plastic shoe coverings so we won't track dirt inside. The latter are dispensed by a machine (by now we expect no less): we stick our feet, one at a time, smartly into the machine and the booties' elastic-band tops snap shut around our ankles.

But before we get to the movement-assembly department, we're in for a treat, a glimpse at something even inveterate watch-factory tourists seldom see. We're going to watch hairsprings being made. And not just any hairsprings, but blue

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The Parachrom is made in a giant furnace (above, left) with a porthole (left) for viewing the alloying process (above).

Parachrom ones, which are unique to Rolex.

The company introduced Parachrom hairsprings in the 4130 when the movement was first launched a decade ago. Since then, they have worked their way into all Rolex-brand men's watches (the women's models, along with the company's Cellini collection, have hairsprings made of an alloy identical to that used by Nivarox). The advantages of Parachrom, says Jacques Baur, is that it has superior shock-resistance and anti-magnetism. There are two models of Parachrom hairsprings. One is made for the 4130 and 4160 (a relative of the 4130 used in the Yacht-Master II). The other is for the 3100-series non-chronograph men's-watch calibers, used in the GMT-Master II, Submariner, Deepsea, Day-Date, Datejust, Explorer, and Milgauss.

Parachrom is an alloy of 85 percent niobium and 15 percent zirconium. Rolex makes it itself, by taking 30-centimeter rods of each element, two of niobium and one of zirconium, clumping them together and melting them so that they become a homogenous alloy.

The melting takes place inside an electron-beam vacuum furnace, a tall, shiny behemoth that reaches up through the ceiling and looks kind of like a rocketship, albeit a rather chubby one. Like the modules in Building V, it's a Rolex exclusive. And, like them, it makes us gape because it's so big and odd-looking. We're invited to peek into the furnace. The Rolex executives warn us that the light inside it can damage our eyes if they're unprotected, and hand us dark goggles. We climb up on a viewing platform, put on the goggles, and peer into the furnace through a porthole. There we see the soon-to-be Parachrom rod being heated by a burning stream of electrons to a temperature of 2,400 degrees Centigrade. The rod glows with fiery intensity. It is heated one section at a time: the rod will pass through the electron fire three times before the metal is completely blended. The process is entirely automatic, but a technician observes it on a video monitor to make sure nothing goes awry.

Parachrom blended, it's time to turn it into hairsprings. That requires a marathon series of stretching and flattening operations, punctuated by occasional heat treatments to soften the metal so that it can be worked. When they're over, the original 30-centimeter-long rod, which is one centimeter in diameter, will be three kilometers long and about 0.1 millimeter thick (the exact thickness will vary according to the type of hairspring being made). A single rod yields 10,000 hairsprings.

The first stretching process is cold rolling. It's performed by two men in lab coats who stand on either side of the rolling machine, passing the ever-thinner rod back and forth through ever-smaller notches in the machine. They seem like an anachronism in this world of advanced technology. The reason flesh-and-blood workers perform this task, Baur explains, is that the metal is quite brittle when it first comes out of the furnace and must be handled very carefully until it develops some elasticity. When the men are finished, the bar is three meters long.

Machines take over again for the next process: wire drawing. We stop to watch one machine pulling the wire through four successive dies as it becomes ever thinner. It will pass through about 50 dies in all.

Then the wire, which is still round, like a pencil, is flattened by a technique called high-precision cold rolling. It takes place in its own, temperature-controlled room. We can't go inside, Baur tells us: the change in room temperature caused by our presence would ruin the wire. The thickness tolerances the machines must meet are 0.1 microns. We peer through the glass at the machine and can barely see the wire: at the end of the process, it is 50 microns thick and 150 microns wide.

Now the straight wire is turned into a coiled spring, manually, through a delicate and painstaking process called, in French, *estrapadage*. A woman takes three 20-centimeter segments of wire and, with a dexterity that amazes us, threads one end of each segment through a thinner-than-a-hair notch in the middle of a lifesaver-shaped mold, affixing the strands at the center so they will stay in place. She then rotates the mold, as if it were a potter's wheel, causing the three wires to wrap around the spindle within the mold. The reason three wires are coiled in one mold, Baur explains, is to provide the correct spacing and hence the correct curvature for each coil. The mold is heated so the wire will retain its new shape. Then, using a tweezers, the technician separates the three springs, which are about 6 millimeters in diameter. Difficult as the coiling process is, Baur tells us, separating the springs is much harder: one tiny slip of the tweezers and the springs are rendered useless.

What about the springs' blue color, we ask. They're a nice shade of cobalt or

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Workers assembling movements with the Jura forest in the background

The Bienne Connection

Perched on a slope overlooking Bienne's Old Town is a building with, at its top, big green letters spelling "Rolex," flanked by two yellow crowns. The building is a Bienne landmark, an important part of the city's history. But what happened inside affected not just Bienne but the whole watch world.

This was once the factory of the movement maker Aegler SA. Aegler was founded in 1878 by Jean and Anna Maria Aegler, just as Bienne was hitting its stride as a major watchmaking center. The company specialized in small, precision watch movements. After Jean Aegler died, in 1891, his son Hermann took the business over, continuing to make the same type of movements. (The building with the Rolex sign was built by Hermann Aegler in 1914; the original, smaller factory that Jean Aegler built is right in front of it.)

Small, high-precision movements were just what Hans Wilsdorf, an ambitious, young German-born watch-industry entrepreneur, needed. As the 20th century dawned, Wilsdorf had become convinced that, despite the nay saying of nearly everyone in the watch business, the wristwatch would one day prevail over the pocketwatch.

In 1905, Wilsdorf's company, Wilsdorf & Davis, based in London, placed a huge order with Aegler for movements to use in wristwatches. Three years later, Wilsdorf gave a brand name to his line of wristwatches: Rolex. It was destined to become the world's biggest, most famous, luxury watch brand. (Wilsdorf & Davis changed its name to Rolex Watch Co. in 1915.)

Through the decades that followed, Aegler's firm in Bienne continued to make movements for Wilsdorf's company. It developed several important innovations, the most famous of which is the self-winding system, based on the 18th-century notion of a spinning rotor. Wilsdorf named this system the "Perpetual." Its inventor was Aegler SA's technical director and chief, Emile Borer, who patented the device in 1931. (Borer married into the Aegler family.)

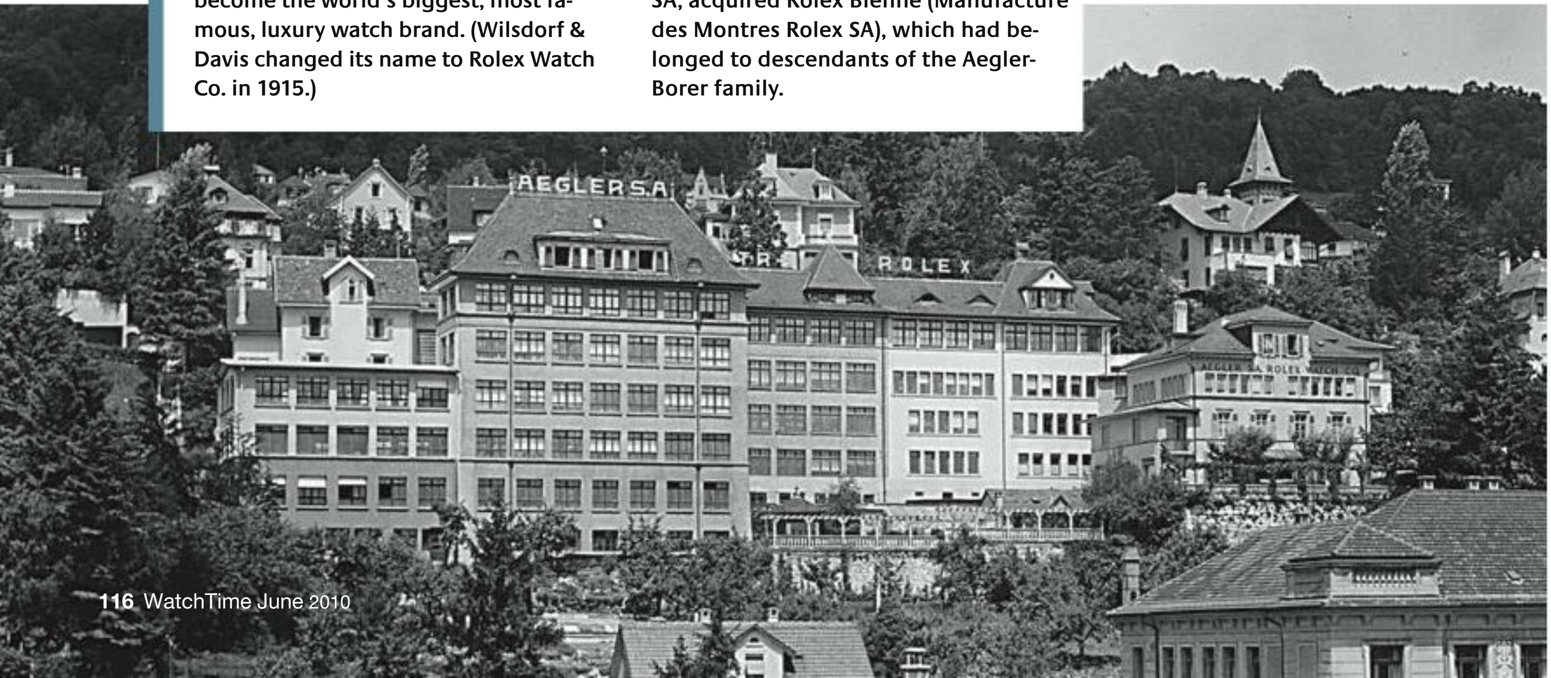
In the meantime, Wilsdorf had, in 1919, moved from London to Geneva, where his company made cases for Aegler SA's movements, assembled the watches, and sold them all over the world. In his memoirs, he explained that "we want to leave to our factory in Bienne exclusively the production of watch movements, while we ourselves create in Geneva case models adapted to the refined taste of the Genevans." (Wilsdorf's calling the Aegler factory "our factory" refers to the fact that, for part of Rolex history, Rolex had partial ownership of the Aegler factory.)

The Rolex Geneva-Bienne division of labor established more than a century ago continues to this day. Bienne makes the movements; Geneva makes just about everything else, then assembles the watches and markets them.

What has ended, though, is the two companies' separate ownership. In 2004, Rolex Geneva, now called Rolex SA, acquired Rolex Bienne (Manufacture des Montres Rolex SA), which had belonged to descendants of the Aegler-Borer family.

Rolex founder Hans Wilsdorf

The Aegler-Rolex factory in Bienne circa 1955



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royal blue, very close to the color of blued steel screws or watch hands.

The color is produced by an oxidation process, we're told. It not only spruces up the springs' appearance, it makes them more stable — that is, better able to perform consistently over a long period of time. We are not allowed to see the bluing operation: it's a Rolex secret.

We do get a look at one of the last hairspring-making steps: the bending of the outer end of the spring into a Breguet overcoil. It is done automatically by a machine, another Rolex exclusive, which is fitted with two flat hammers that strike the spring at precise points to bend it at the correct angles. But because the Parachrom has tiny inconsistencies from spring to spring, and thus responds slightly differently to the hammer strikes, an employee looks through a microscope to check the precise curvature of each spring. If needed, she makes adjustments using the hammer machine.

NOW IT'S TIME to see all the parts unite to form Caliber 4130. We go to the movement assembly department. There, workers specialize in specific assembly tasks. One person puts the gear train together. Another mounts the balance and, using an electric screwdriver programmed to provide just the right amount of torque, screws down the balance bridge. We see the 4130 come to life: its blue hairspring starts to expand and shrink as if it's breathing.

To protect the movements from dust while they're being assembled, they're placed on a horizontal, rotating carrousel underneath the watchmaker's bench. Each movement — there are 10 on each carrousel — pops up through a hole in the bench when its turn comes to be worked on. It then drops down again and the next movement presents itself. The technicians' hands move as deftly as if they were those of robots performing microsurgery.

Then a machine lubricates the movements. We watch a video screen as the machine places tiny droplets of oil on each tooth of an escape wheel. All told, there are 200 different points in the movement that need lubrication. The company uses five types of lubricant in each caliber. There's one lubricant for the winding barrel, for instance, another for the chronograph mechanism. Some of the

A rendering of the as-yet-unbuilt Rolex VII building (in foreground), planned for completion in 2012

The final product: the Cosmograph Daytona

THE LAST STEP WE SEE IS THE ASSEMBLY OF CHRONOGRAPH COMPONENTS ON THE BASE MOVEMENT, MAKING THE 4130 COMPLETE.

oils are manufactured in-house; others by outside suppliers using recipes exclusive to Rolex. Important as lubricants are (Baur says the stress endured by some components is equal, relative to size, to the stress a train imposes on a train track), they're applied in almost trace amounts. Each year, the company uses just 10 liters of oil for all the movements it makes and services.

The next stop on the tour is the fine adjustment department. There, an employee corrects the movement's rate so that it will meet COSC standards. Using a tiny wrench, she turns the gold screws; Rolex has named them Microstella screws because of their star-like shapes. There are four of them, in two sizes, all four affixed to the inner edge of the balance wheel.

When she finishes, the movement is running as precisely as anyone could want. But it's missing something: it's not yet a chronograph. That's soon remedied: a watchmaker assembles the chronograph components onto the base movement. She uses a needle-thin applicator to place lubricant in eight different places in the chronograph mechanism. She screws the bridge into place. Then she checks her work, starting and stopping the chronograph to make sure the column wheel, clutch, hammers, cams and all else work correctly. Bingo.

The movement will now be sent to COSC, either to the agency's Bienne office or to its Geneva facility. In 2008, COSC certified 769,850 Rolex movements. (COSC data for 2009 will be released in August.)

Just one stop remains. Standing in the top-floor restaurant in Rolex VI, we look out through the picture window at an enormous construction project. That, we're told, is Rolex VII. When it's finished, in 2012, it will provide an additional 230,000 cubic meters of space. It will house, among other things, a robotized components storage and delivery system that will transport parts to distant work stations in a matter of minutes. The new extension will be connected to Rolex IV and VI, creating one mega production unit.

Soon giant Rolex will be bigger still.○

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LUMINOR
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NAVAL GAZING

Panerai's Luminor 1950 3 Days GMT, inspired by a vintage watch used by the Italian navy, features the brand's recently introduced P.9001 in-house movement. We put both wristwatch and caliber to the test.

BY JENS KOCH

PHOTOS BY NIK SCHÖLZEL

PROS

- + Proven retro design
- + *Manufacture* movement
- + Zero-return for the seconds hand via the crown

CONS

- − No minutes scale
- − Minor flaws in the finishing

Caliber family P.9000, which debuted in 2009, is the second line of in-house movements developed by Panerai. Though their power reserve is shorter (three rather than eight days), these offer the convenience of automatic winding at significantly less expense than their predecessors in the P.2000 family. Caliber P.2003, in fact, holds a full 10 days' worth of power, but at $17,300, the watch that it powers, the Luminor 1950 10 Days GMT, is twice as expensive as the one we test here, the Luminor 1950 3 Days GMT.

Despite its lower price tag, the 3 Days GMT provides almost everything the 10 Days offers: a second time zone (but without a day-night display for the 12-hour hand), a power-reserve display (but positioned on the back and nonlinear) and a return-to-zero mechanism for the seconds hand, which is triggered when you extract the crown into the hand-setting position. Along with Caliber P.9001, which powers the watch in this test, the family includes the basic P.9000 (with no second time zone or power-reserve display) and the P.9002 (with power-reserve display on the front).

TYPICAL CHARACTERISTICS of this Swiss-made, Italian-designed brand include a satin-finished and pillow-shaped case with a polished bezel, a protective stirrup with a lever used to press the crown firmly into the case, and a distinctively styled dial with large Arabic numerals and hour indices. The 3 Days GMT watch is a faithful interpretation of the original Luminor model, which debuted in 1950 as a watch for Italian Navy divers. but it isn't essentially different from other Panerai models. The unmistakable family resemblance of its products is both a strength and a weakness of this brand: if you aren't fond of this one's design, you probably won't find any other Panerai model to suit you. On the other hand, every Panerai watch is immediately recognizable to the brand's many fans. And judging by the staying power of Panerai's retro design, the Luminor 3 Days will probably be just as appealing to collectors 10 years from now – which cannot be said about every contemporary watch.

Furthermore, the 3 Days GMT does boast several details that distinguish it from other Panerais. The color of the lettering on the date disk isn't pure white, but slightly beige. Also, we were pleased to note that the 3 Days makes do without the mag-

Artful engineering: Caliber P.9001, with high-tech allure and power-reserve display nifying lens found above the date displays of some other Panerai watches. Though this model has a variety of functions, its dial doesn't look cluttered: the hand for the second time zone can be concealed under the hour hand for the local time, and the power-reserve display is positioned out of sight on the back. The crystals above the dials in other members of this collection are highly domed, but this one is only slightly curved, a difference that we appreciated.

The sandwich-style dial, another Panerai trademark, is as beautiful as ever, with an underlying layer of glow-in-the-dark Super-LumiNova topped by an opaque dial pierced with apertures for the numerals and indices that mark the hours. This gives the watch greater depth, keeps it faithful to its historic predecessors, and also explains the open, "stencil" design of the digits 6 and 9. This type of architecture guarantees that the numerals and indices glow uncommonly bright, which makes this watch very legible in the dark. The hour hand for the second time zone is coated with luminous material, as are the small seconds hand and its four accompanying indices. The time is also easy to read in daylight, though the lack of a minutes circle on the dial's periphery means it cannot always be read as precisely as one might wish. The power-reserve display on the movement side uses a disk that rotates under a window; its color changes from black to red shortly before the energy is exhausted.

Careful scrutiny uncovered a few specks of dust on the hands, which were stamped from rather thin stock, which causes them to bend toward the polished eyelet at the center of the dial. There's also an obvious break in the satin finishing above the lugs, which accept the crosspiece that holds the strap.

IN ALL OTHER RESPECTS, however, the case is excellently crafted. It also scores points for its quick-change system for the strap lugs. A special tool, delivered with the watch, can be used to press a button on the underside of each lug, making it easy to push out the crosspiece, remove the leather strap and install the alternate rubber one that is also included.

The broad, pre-mounted, machine-stitched crocodile-skin strap with cut edges is very well-made, as is the pronged buckle, which brings to mind an old-fashioned bottle opener. Some sharp edges become evident when you put it under a loupe, but you don't notice them once the watch is fastened to your wrist.

All in all, and despite its large 44-millimeter diameter, the Luminor 1950 3 Days GMT is quite comfortable to wear, although the lugs don't curve very far downward, which gives this big watch a tendency to slide back and forth along the wrist. Fortunately, our concerns that the crown protector might poke uncomfortably into the back of the wrist were unfounded.

SPECS

PANERAI LUMINOR 1950 3 DAYS GMT AUTOMATIC 44MM

Manufacturer: Officine Panerai,
Rue de la Balance 4, CH-2000 Neuchâtel,
Switzerland

Reference Number: PAM 00320

Functions: Hours, minutes, seconds, date, second time zone; power-reserve display on the back; zero-return function for the seconds hand

Movement: P.9001, automatic; 28,800 vph; 29 jewels; Incabloc shock absorption; Glucydur balance; fine adjustment via weight screws on the balance; 72-hour power reserve; diameter = 31.8 mm; height = 7.9 mm

Case: Stainless steel, nonreflective 2.6-mm-thick sapphire crystal, fully threaded caseback with transparent pane of sapphire, water-resistant to 300 meters

Strap and clasp: Crocodile-skin strap, pronged stainless-steel buckle

Rate results:
(Deviations in seconds per 24 hours)

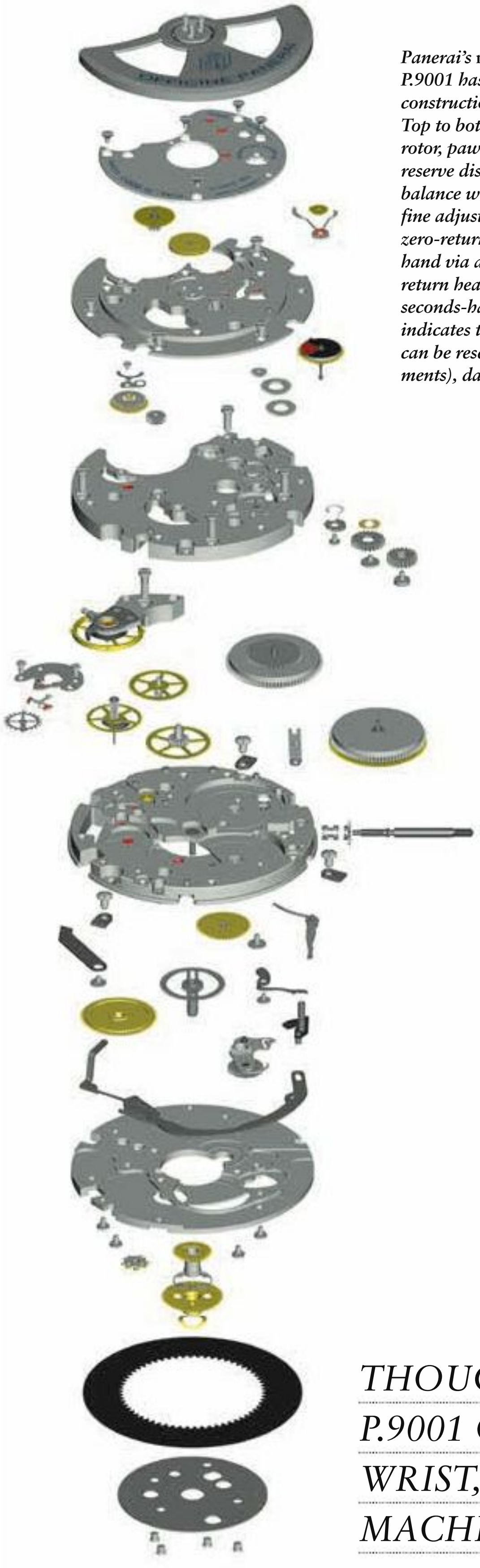
Dial up	+6
Dial down	+6
Crown up	+1
Crown down	+2
Crown left	+4
Crown right	+3
Greatest deviation of rate:	5
Average deviation:	+3.7
Mean amplitude:	
Flat positions	331°
Hanging positions	291°

Dimensions: Diameter = 44 mm, height = 17.7 mm; weight = 159 g

Price: $8,900

PANERAI'S SANDWICH-STYLE DIAL GIVES THIS WATCH DEPTH AND ENSURES THAT ITS NUMERALS AND INDICES GLOW BRIGHTLY IN THE DARK.

The case is constructed like the hull of a ship, with intersecting arcs creating the shape.



Panerai's manufacture *Caliber P.9001 has a sandwich-style construction with six plates. Top to bottom: the ball-borne rotor, pawl winding, power-reserve display on the back, balance with four screws for fine adjustments, two barrels, zero-return for the seconds hand via a lever and a zero-return heart on the staff of the seconds-hand, the hand that indicates the local time (which can be reset in hourly increments), date ring.*

THE CROWN PROTECTOR'S hinged lever also does not hinder the operation of the watch. It can be quickly opened, and it is easy to turn the large, easy-to-grasp crown while the watch is strapped to the wrist, making all the setting functions user-friendly. The mainspring can be manually wound when the crown is pulled out to its first extracted position; the hour hand for the local time can be reset in hourly increments when the crown is in its second position — a very practical feature for those who frequently travel outside their home time zone. The date display jumps forward or backward accordingly, so readjusting it is easy and quick, despite the absence of a genuine quick-adjustment mechanism.

When you pull the crown all the way out to its third position, the seconds hand on the subdial at 9 o'clock will race back to zero, the balance will stop oscillating, and the hours and minutes can be reset in the usual way. Afterward, you can simply swing the protective lever over the crown and use it to press it back into its secured position. Its return triggers the seconds hand to resume moving. Synchronizing this watch with an audible time signal or a radio-controlled clock is very easy thanks to the zero-return mechanism for the seconds hand, also used by A. Lange & Söhne and found on historic Panerai models. Like the return-to-zero function for the elapsed-time hands of a chronograph, it is triggered by a lever inside the movement, acting on a return-to-zero heart mounted on the staff of the seconds hand.

Caliber P.9001 is visible through a pane of sapphire in the caseback. Though the rotor is skeletonized, much of the movement's inner workings are hidden because a large plate covers the entire mechanism except for the balance and its cock. A closer look reveals a sickle-shaped window for the escape wheel and another window through which one can see the pawl of the automatic winding mechanism. The rear view also includes the power-reserve display: a red field comes into view through the aperture whenever the energy supply shrinks to a critical level. The rotor, plate and balance cock are each decorated with a wave pattern. Combined with the blue filling of the engraved lettering, it creates an attractively technical look that matches this watch's overall styling well. The polished heads of the silvery screws also look good, as do some of the other screws, which have been thermally blued. Some of the edges are bevelled, others both bevelled and polished: these look very nice, although they're a bit narrow. The cover plate for the balance, which has been stamped from sheet metal and hasn't been meticulously polished, is somewhat less impressive.

THOUGH PANERAI'S IN-HOUSE CALIBER P.9001 GAINED EIGHT SECONDS ON THE WRIST, ITS AVERAGE GAIN ON THE TIMING MACHINE WAS A MERE 3.7 SECONDS.

The Luminor's pronged buckle is nearly as large as a belt buckle.

The bidirectionally winding rotor uses pawls and runs over low-wear ceramic ball bearings. It supplies power to the barrels, which (as the watch's name indicates) amass enough energy to keep the watch running for 72 hours. A total of 227 components — including 29 jewels for ideal reduction of friction — comprise the movement. Four screws along the rim provide the solution to the problem of finely adjusting the balance without the need for an index tail. Until a few years ago, this detail was reserved for watches in the upper echelons of *haute horlogerie.*

Our rate test revealed that Panerai has done a good job of finely adjusting the movement. Though it gained eight seconds on the wrist, its average gain on the timing machine was a mere 3.7 seconds. The greatest deviation among the various positions (five seconds) is quite respectable, too. The amplitude remained high in all positions.

For a watch with a *manufacture* movement, the price is reasonable, only moderately more expensive than the earlier models that contained ETA movements. The Luminor with the base P.9000 movement costs just $1,100 more than the comparable version with the Valjoux 7750 without a chronograph mechanism. Just $1,500 more buys you the Luminor tested here, with second time zone, power-reserve display and zero-return for the seconds hand. Few watches with in-house movements in this price range offer a comparable range of functions. ○

SCORES

PANERAI LUMINOR 1950
3 DAYS GMT AUTOMATIC 44MM

Strap and clasp (max. 10 points): The broad crocodile-skin strap is very neatly crafted. The milled, gigantic pronged buckle is a good match for the brawny case.	**9**
Operation (5): The crown is easy to grasp and to operate. The hand that shows local time can be reset in hourly increments. The zero-return mechanism for the seconds hand makes it easier to set the watch with to-the-second accuracy.	**5**
Case (10): The high water-resistance and the rounded but clearly contoured edges, as well as the alternation between polished and satin-finished surfaces, are appealing features, but the satin finishing could have been more carefully executed in a few places.	**8**
Design (15): A Panerai is always easy to recognize, and this watch carries off the familiar design well, with its large proportions and simple dial.	**14**
Legibility (5): The time is very easy to read in both light and dark conditions, but the lack of a minutes scale detracts from an accurate reading. The date display is properly large.	**4**
Wearing comfort (10): Nothing pinches or pokes, but because this watch is so large, it tends to slide back and forth along the wrist.	**7**
Movement (20): Good range of functions and a modern construction. The high-tech look with an ample amount of decorations is a good match for this watch's styling.	**15**
Rate results (10): The watch ran a bit fast on the wrist, but achieved good results on the timing machine.	**8**
Overall value (15): It is priced reasonably for watch with an in-house movement, only a bit more than the previous version with an ETA movement .	**12**
TOTAL:	**82 POINTS**

The Artisan in the Alps

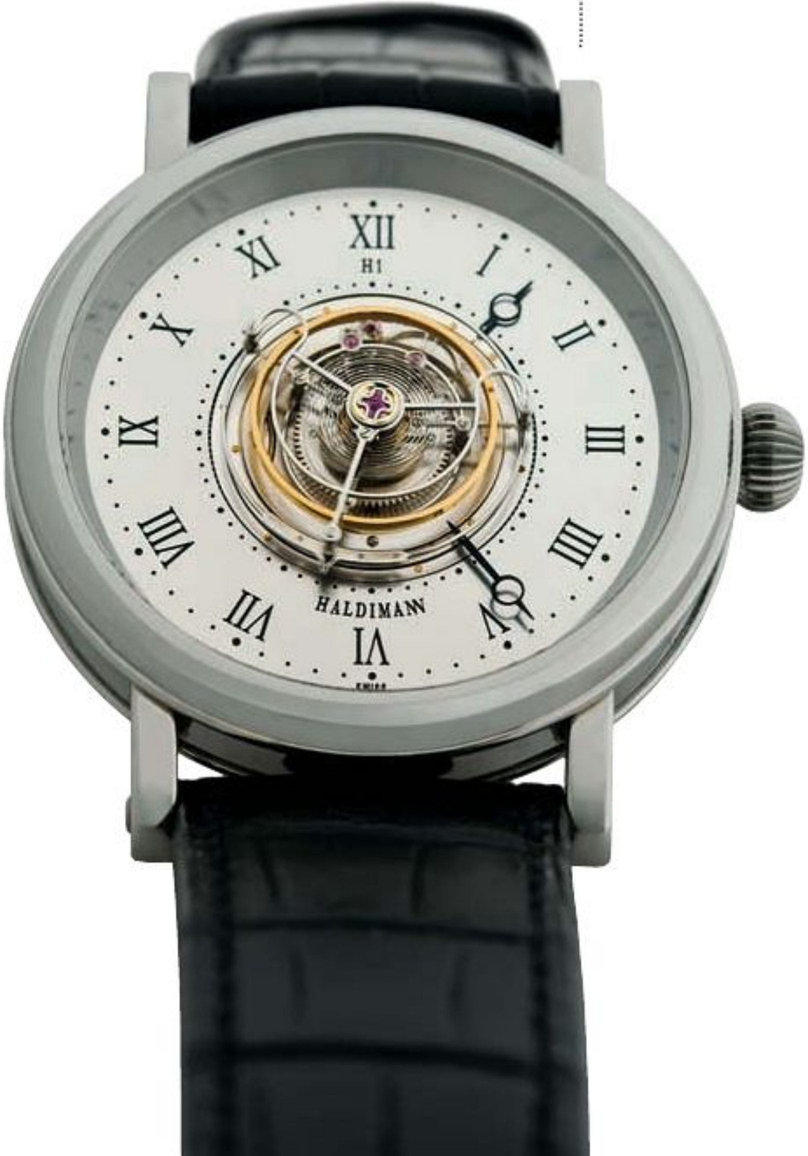
Headquartered far from the usual Swiss watch centers, independent watchmaker Beat Haldimann takes pride in making a style of timepiece that is distinctly his own.

BY LUCIEN F. TRUEB
PHOTOS BY VALENTIN BLANK

Contrary to accepted wisdom, horological talent in Switzerland is not solely concentrated in the Jura Mountains and in the city and canton of Geneva. Beat Haldimann, born in 1964 in Oberdiessbach in the Emmen Valley, is living proof. The area where he grew up enjoys worldwide renown not for its watches, but for its hard cheeses, distinguished by their uncommonly large holes (*Emmentaler* is what most Americans know as Swiss cheese). Haldimann's lineage hints at no genetic predisposition toward micromechanical prowess. At the time of his birth, his father was a postal worker and his mother a psychiatric nurse. His recent ancestors were almost exclusively civil servants and farmers. The year that Beat was born, the Haldimanns moved to Uetendorf, in the canton of Bern, where his father had taken a job as postmaster. They took up residence in a spacious house that would soon accommodate a family of seven. Beat (pronounced "*beh-awt*") grew up under the watchful eyes of three older sisters and was trailed by one younger brother. He was naturally "adopted" by the three girls, who also challenged him to learn everything they had, including the skills of cooking and knitting.

THE SOUND OF HIS WATCHES IS IMPORTANT TO HALDIMANN: THE H1 WRISTWATCH WAS MADE TO TICK WITH THE EXACT SAME SOUND AS A VINTAGE BREGUET POCKETWATCH.

Haldimann's first wristwatch: the H1 with central tourbillon



Haldimann can thank his grandfather for his first significant contact with watchmaking. Ninety years old at the time and no longer able to read comfortably without a loupe, his grandfather knew that the nearest source for one was the village watchmaker, Paul Dällenbach. Haldimann, who was on the threshold of choosing a career, became fascinated by the work Dallenbach did in his atelier, and asked the master watchmaker if he could do an apprenticeship under his tutelage. Dällenbach agreed, but insisted that the young man undergo a complete apprenticeship that would eventually qualify him as both watchmaker and *rhabilleur* (repairer of watches).

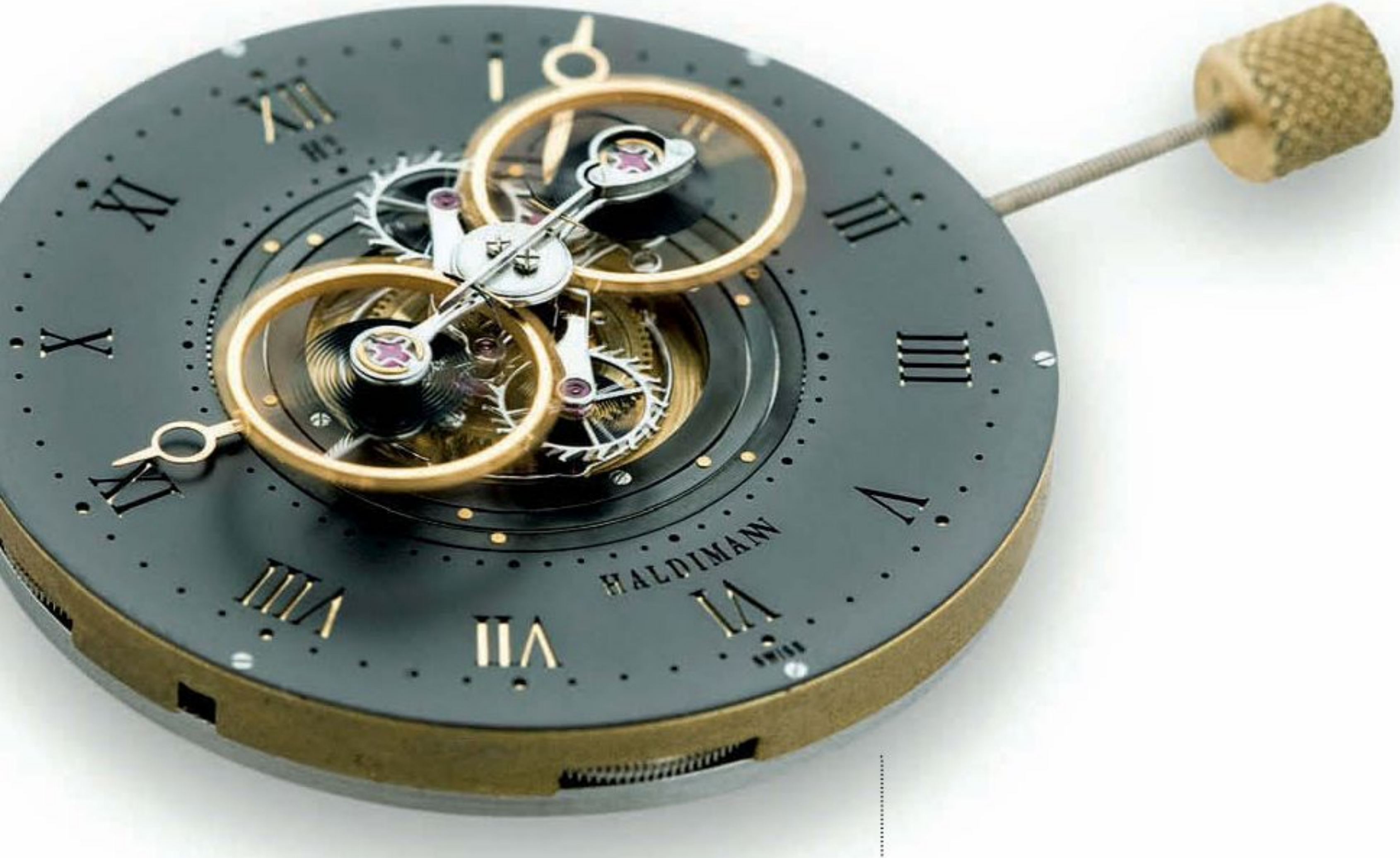
One of Haldimann's duties in his apprenticeship was to spend a week each month attending specialized classes at the school of watchmaking in Solothurn. The focus there was on theory, but it also taught practical skills, such as how to regulate, turn pivots, and repair electrical clocks. Haldimann completed his four years of study and was duly awarded the Eidgenössischer Fähigkeitsausweis, the Swiss certificate of competence, in 1985.

Anyone who chose to pursue a watchmaking career in the early 1980s must have been very strongly motivated, perhaps even crazy. Those years were the worst depths of the so-called quartz crisis, which was devastating Switzerland's watch industry. Traditional watchmaking was viewed as a profession headed for extinction. But Haldimann refused to be dissuaded. He stayed with his teacher for an extra year, completed his compulsory service in the Swiss military, and in 1986 found a job in ETA's research and development department in Grenchen.

WITH THE CHANGE of scenery came culture shock. Haldimann left a village watchmaker's workshop and suddenly found himself in the midst of a gigantic business operation, where everything ran according to bureaucratic protocol. As Haldmimann saw it, ETA functioned very efficiently in the area of production, but administration consumed more than its fair share of the budget. He felt the reports that had to be written and rewritten were useless, and that far too much time was wasted sitting in unnecessary meetings.

Nonetheless, Haldimann was not unhappy with his situation. ETA at this time was under the direction of competent managers, led by the legendary Ernst Thomke and Anton Bally. But the ongoing quartz crisis led to continuous restructuring and the closures of entire departments. In ETA's laboratory, Haldimann busied himself with climatic experiments and measurement of temperature curves. His colleagues were physicists and engineers. For a while, Haldimann even seriously considered the possibility of studying physics, but he ultimately decided to remain loyal to watchmaking. He left ETA in 1989 and joined Chronometrie Bangerter in the city of Thun, near his childhood home of Uetendorf.

While continuing to work in his chosen profession, Haldimann attended classes in Solothurn for his certification as a master watchmaker, with the goal of going into business for himself as soon as possible. He realized this dream in 1991 at the age of 27. He named his business Haldimann Horology and



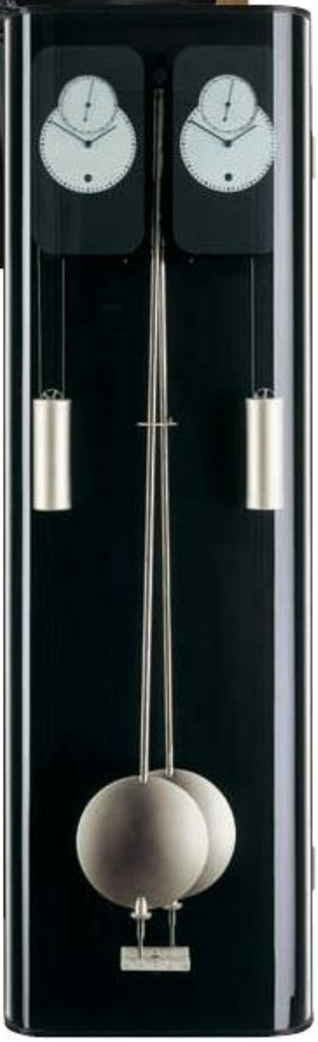
The two balances in the H2 reciprocally synchronize one another for extreme precision.

chose for its logo a dozen balls arranged to form a circle. Haldimann set up the company in the top floor of a chalet directly beside the Lake Thun. Here he built prototypes and advised well-known watch brands about technical questions, but made most of his income restoring antique timepieces.

He also signed a 10-year contract with a well-known watch firm whose identity he prefers not to divulge. His job was to conduct developmental work for complicated watch movements, in the course of which he devised numerous patented inventions. His contract included a non-compete clause that prohibited him from making any wristwatches or pocketwatches of his own.

Table clocks, however, were not mentioned in the contract, so Haldimann initially concentrated his independent work on those. He developed the so-called “Haldimann escapement,” which he installed in the first table clock that he built himself. As a member of the AHCI (Academy of Independent Creative Watchmakers), he introduced his double-pendulum clock at the Basel watch fair in 2000. This invention consists of two identical weight-powered movements, each of which is equipped with a Haldimann escapement, that stand side by side in identical, glass-panelled housings. The two pendulums are linked through the boom in their suspension, so they gradually come into resonance and run synchronously. What one sees first are the motions of the two pendulums; only on closer examination does one notice the dials displaying local and world time. This design

Haldimann is very independent: even the wheels and pinions are made in his own atelier.



The double-pendulum clock with two Haldimann escapements

HALDIMANN MADE HIS DREAM OF OWNING A BUSINESS COME TRUE AT AGE 27, WHEN HE FOUNDED HIS OWN FIRM, HALDIMANN HOROLOGY.

results in a significantly more accurate rate than can be achieved with only one movement. It also makes clear the influence of Abraham-Louis Breguet on Haldimann' work, though the latter puts more emphasis on playful, artistic aspects in his timepieces.

The philosophy that permeates Haldimann's wristwatches is that they should primarily be dynamic artworks with rhythmical motions that stimulate delight and instill serenity; the bare-bones physics of timekeeping is secondary. He builds timepieces intended to bridge the gap between technology and art, simultaneously existing as both. For example, to enhance its owner's enjoyment of his double-pendulum clock, Haldimann delivers it with his "Haldi Chair," a foldable chair of his own design, consisting of slats that form a grid.

HALDIMANN BECAME free of his contractual obligation to that unnamed watch company in 2001, and could then begin transforming his long-cherished wristwatch ideas into realities. He had annually invested a portion of his earnings to enlarge his library and to augment his machine park, so it was becoming increasingly crowded in the chalet. In 2002, Haldimann Horology moved into a nearby house built during the Art Nouveau era. Haldimann and his family still live there today.

Thun is an unusual area for a watchmaker like Haldimann to set up shop, but it also has its advantages. Because of its scenic location at the foot of the Bernese Alps, customers and others who pay him a visit can combine their trip with an excursion to the Jungfraujoch or other Alpine tourist attractions. The most important tool in Haldimann's horological arsenal is a little black book that he carries with him everywhere, in which he jots down ideas and illustrates them with hand-drawn sketches before working things out in greater detail on a computer.

Needless to say, Haldimann Horology is equipped with a complete spectrum of hardware and software. But there's one item he neither owns nor intends to own: a numerically guided CNC machine. It would improve the efficiency of the production process, but this would not impress the connoisseurs who seek out Haldimann's watches, which customarily sell for six figures. On the contrary, these customers appreciate the fact that each of Haldimann's timepieces is individually made and that no two watches in his small series of 10 to 30 pieces ever look totally identical.

Omega
A Journey Through Time

At over 800 pages, with more than 6,600 illustrations, this is one of the most comprehensive works ever published about a watch brand. Devoted entirely to the evolution of Omega's watches, from the late 19th century to the present day, its pages come to life with reproductions of numerous watch advertisements that echo the color, feel and flavor of their time. The book is ideal for collectors, who will find info on all their favorite Omega models. Prefaced by Nicolas G. Hayek and written and designed by Marco Richon, curator of the Omega Museum, it is organized like a structured catalogue: divided into 12 chapters, preceded by a brief history of the company and followed by a complete list of calibers.

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Haldimann strives to acquire the most precise analog machinery available. Each machine is operated and guided by hand, which is the next best thing to manual lathe turning and filing. The specialists at Haldimann Horology consider it a challenge to achieve the same level of precision with analog machines as their colleagues elsewhere do with CNC machines, upholding tolerances in the 1/1,000-millimeter range. Doing so takes a bit longer, but Haldimann's demanding customers seem to be perfectly fine with it.

Independence is very important to Haldimann, who strives, wherever possible, to personally make each component of the movement and its accoutrements, all the way down to the screws and the folding clasps. Of course, he orders jewels and sapphire crystals from outside specialists, along with mainsprings, hairsprings, and the leather straps. All in all, Haldimann Horology is about 90 percent vertically integrated.

Haldimann is particularly proud of his watch movements, 100 percent of which are of his own design. Unlike some of his contemporaries, he has never bought movements from outside suppliers and simply added the finishing touches and final decorations. A telltale feature of Haldimann's movements is that you'll never find an index tail, which can cause errors. Eccentric screws are used to finely adjust the balance.

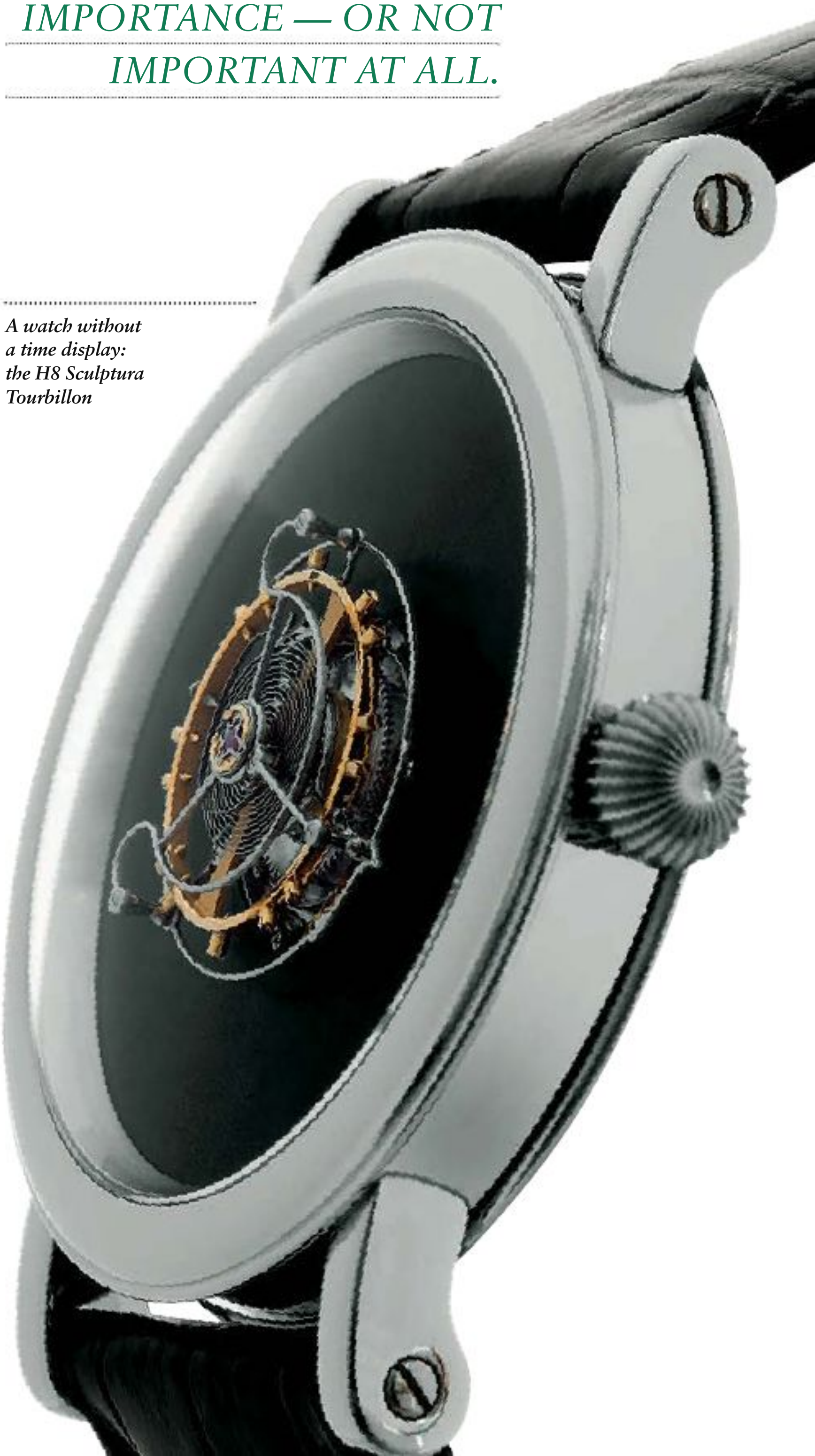
The cases of Haldimann's watches are made of platinum or gold. They have a concave curvature along their flanks that cannot be produced by automated machinery, so each one is manually lathe-turned and then soldered to its lugs.

HALDIMANN'S H1 Central Tourbillon, which he introduced in 2002, presented a very special challenge. The cage of this astonishingly large "flying" tourbillon is 16.8 mm in diameter and rises well above the plane of the dial. The tourbillon is positioned precisely in the center of the dial, so Haldimann obviously couldn't put the axis of one or more hands there. Others had found their own solutions to this conundrum. For example, in the pendules mystérieuses of the Art Deco era, as well as in Omega's contemporary Central Tourbillon, conventional hands were eliminated entirely, replaced by pointers painted onto thin sapphire disks bearing wreaths of teeth along their peripheries.

But simple imitation has never been Haldimann's cup of tea, so he came up with a system of his own. The tourbillon in the H1 rotates at the central point shared by annular gears that are borne along their peripheries. Beyond the tourbillon's cage, these wheels carry protruding Breguet-style hour and minute hands. The H1 is a functional timekeeper, though its owner is far more likely to pass the hours admiring the constant turning of its tourbillon cage, and the escapement that rotates with it, than checking the time.

In designing the H1, Haldimann even considered its audible characteristics: he wanted to create a wristwatch that would duplicate the sound of a Breguet pocketwatch. Some H1 owners place it on their nightstand so they can fall asleep to the lulling sound of its quiet ticking. Approximately every 30 seconds, they hear the delicate hum of the watch's balance spring, a melodic sound resulting from its resonance with the tourbillon's cage.

HALDIMANN PRIMARILY REGARDS HIS TIMEPIECES AS DYNAMIC ARTWORK. DISPLAYING THE TIME IS OF SECONDARY IMPORTANCE — OR NOT IMPORTANT AT ALL.



A watch without a time display: the H8 Sculptura Tourbillon

Haldimann builds so few watches that he and his six colleagues maintain their sidelines as restorers of chronographs and complicated clocks. These historic mechanisms provided the inspiration for another of Haldimann's creations, the H2, which debuted in 2005.

The H2 translates the concept of a double-pendulum clock into the dimensions of a wristwatch. Instead of classic pendulums, he uses a pair of identical rotating ones — essentially two balances that oscillate at precisely the same frequency. The resulting resonance effect ensures that the twin balances reciprocally synchronize each other. The vibrations are conveyed via the watch's plate.

Perhaps the most bizarre of Haldimann's many creations is the H8 Sculptura, which is very likely one of the world's first watches from which the time cannot be read at all. It consists solely of a tourbillon and has no hands. Haldimann creates between 20 and 30 pieces of the H8 Sculptura every year. The concept behind the Sculptura is that it responds to time — with motion, rhythm and frequency — without displaying its passage, so its owner can enjoy the luxury of abstracting the present moment without entirely escaping from it. One customer wrote that he often glances at his watch, but fortunately never knows what time it is. Haldimann considers this the highest compliment he could be paid.

HALDIMANN IS NOT BIG on marketing. He hasn't exhibited at the AHCI's stand in Basel since 2004 and relies primarily on word-of-mouth to promote his work to collectors and watch aficionados. As an independent watchmaker, Haldimann has delivered somewhere between 70 and 80 watches to customers thus far, and it goes without saying that he knows each watch intimately. Those customers know not to send their watches anywhere but directly to him for repairs and servicing, though most have never needed to do so. Haldimann's fans take pleasure in travelling from the United States or Japan to Thun to discuss the idiosyncrasies of their present or future timepieces with the master. Almost every week, either Haldimann or his wife personally leads clubs, associations and classes of schoolchildren through the house to demonstrate how a luxury watch is created.

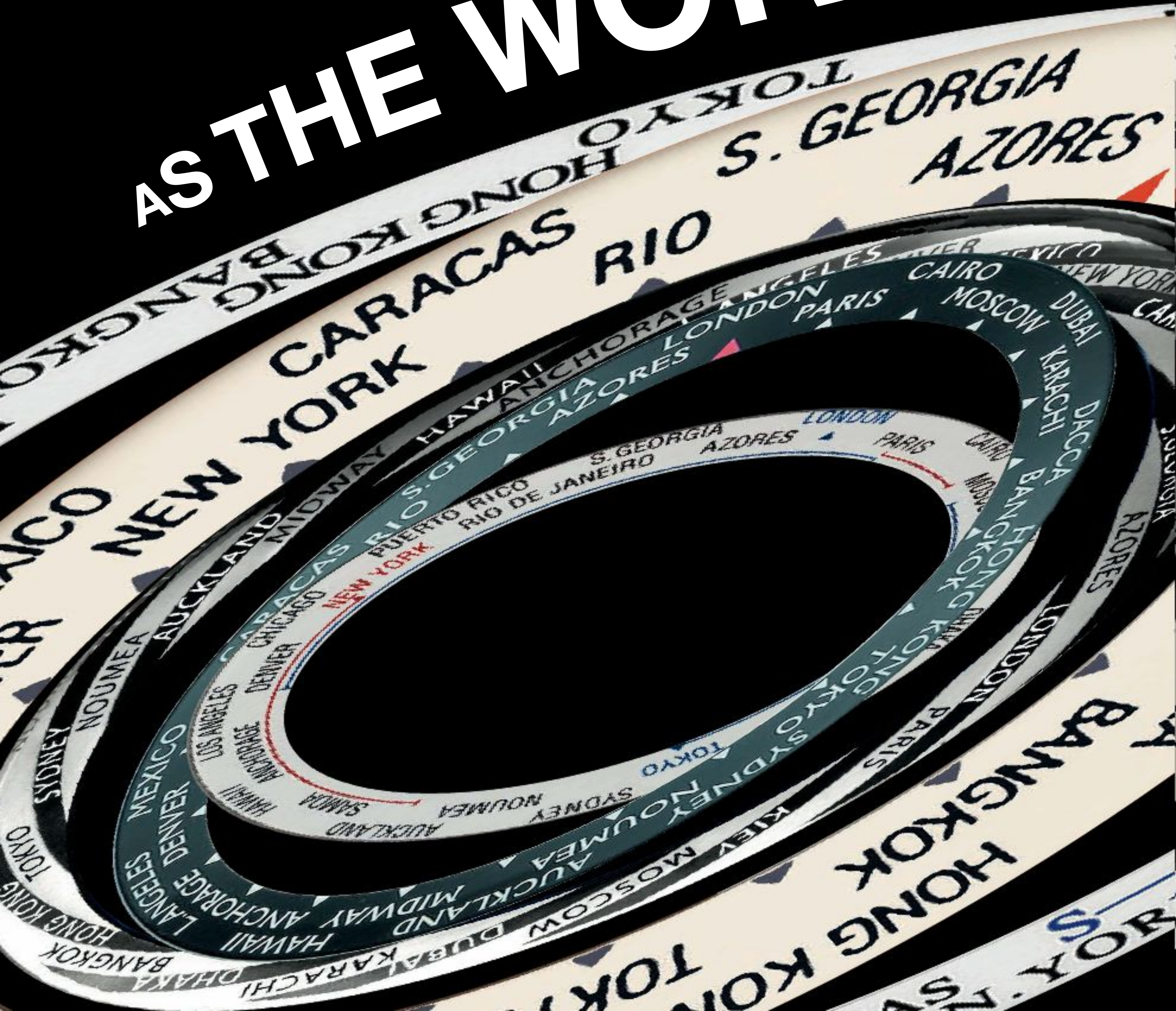
The extreme concentration and absolute perfection demanded by his profession has led Haldimann to the philosophy of Zen Buddhism, a discipline he studied under the tutelage of a Japanese master. One of the lessons it has taught Haldimann is that the human hand, guided by the subconscious mind, creates things that may not enter the consciousness until many years have passed.

In September 2009, the international timepiece museum in La Chaux-de-Fonds conferred upon Haldimann its highly regarded Gaïa Prize, the highest award a watchmaker can receive. Despite this and all his other success, however, Haldimann at first had a difficult time justifying to his father the prices he charges for his watches: the elder Haldimann was initially shocked to learn that the least expensive of his son's products sell for four times what he earned as a postmaster. Fortunately, that shock has since given way to paternal pride. ○

The headquarters of Haldimann Horology lies amidst Alpine scenery

Inside Haldimann's atelier in Thune

AS THE WORLD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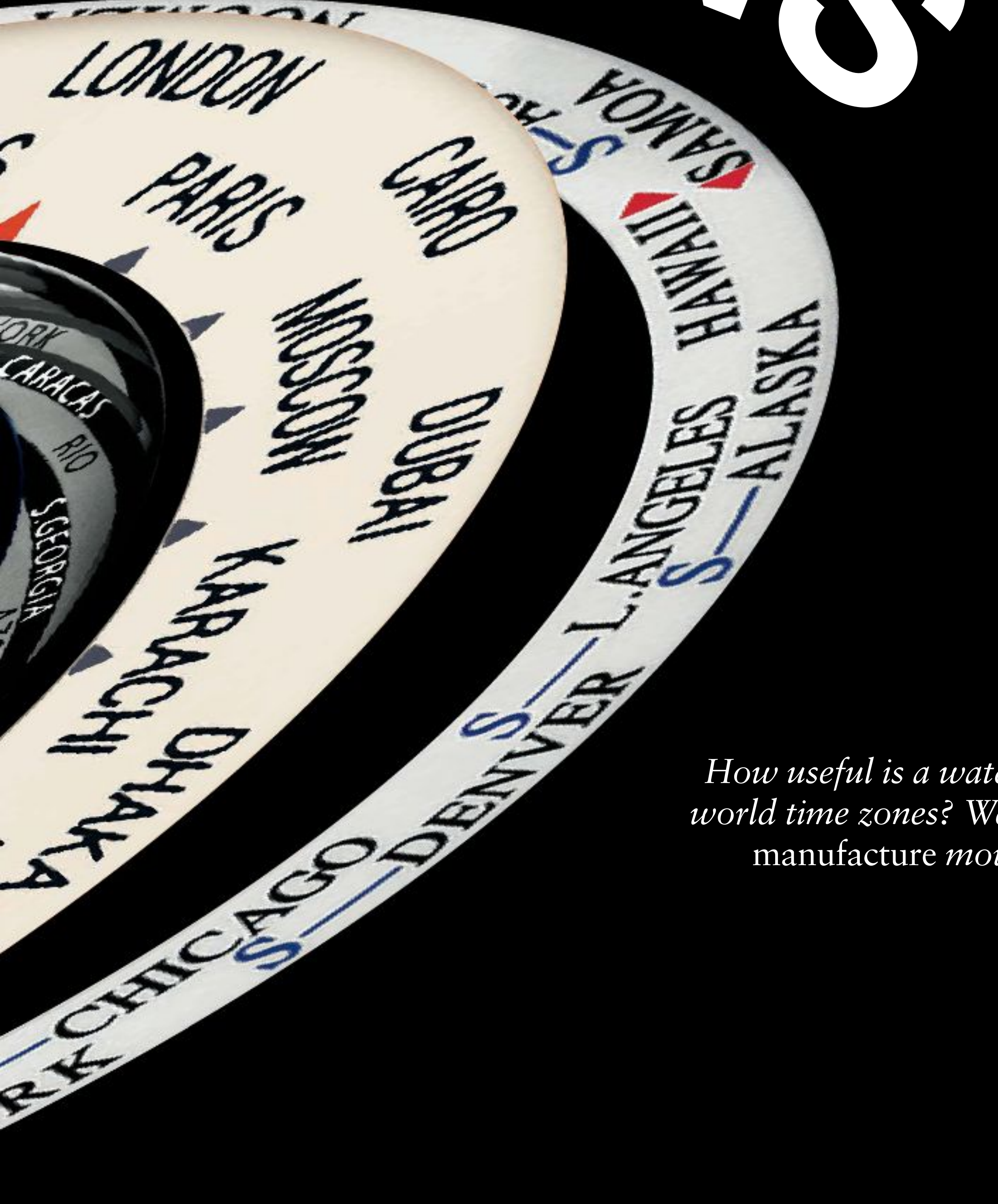


How useful is a watch that shows all 24 world time zones? We reviewed five with manufacture *movements to find out.*

BY ALEXANDER KRUPP

PHOTOS BY NIK SCHÖLZEL

Galileo proved centuries ago that the Earth is a globe, but the planet is still depicted as a flat disk today — at least on modern wristwatches. The reason is that there's no better way to simultaneously display all 24 full-hour time zones on the dial of a watch. The principle is simple: a disk, bearing the names of various cities, corresponds with a 24-hour ring, enabling the wearer to read the correct time at each location. But transforming this simple idea into ticking reality can be difficult, which is why so few watch companies have made their own movements to tackle this challenge, and why each has devised its own solution.

Prior to the establishment of global time zones, the position of the sun had been used to determine local time. Private railroad companies each used their own time systems, which made it risky to change trains from one line to another on long east-west journeys. After the zones were instituted, in the years prior to the famous Meridian Conference in October 1884, there was finally a basis for synchronizing clocks in individual countries and throughout the world.

PATEK PHILIPPE

Patek Philippe has been making world-time watches since the 1930s, when it first introduced its distinctive globe-shaped hour hand. That style of hand — found on vintage Pateks that are valuable collectors' items today — appears again on the modern **World-Time Reference 5130** watch, introduced in 2006.

With a diameter of 39.5 millimeters, the new model's case boasts contemporary dimensions. A slightly wider city disk increases the watch's diameter by 2.5 mm compared to its predecessor and also improves the legibility of the city names.

If this watch had been reissued a year and a half later, its designers would probably have replaced "Caracas" on the disk with a different city: the Venezuelan capital is no longer suitable for use on world-time watches since President Hugo Chávez underscored his independence from the United States by resetting his country's clocks to conform to a new half-hour time zone (see sidebar on page 133) in December 2007.

This points out another problem: world-time watches cannot indicate the world's many half- or quarter-hour time zones. That's why you'll never see India's New Delhi on a city ring and it's also why tourists visiting Newfoundland must remember that the local time there is half an hour earlier than it is in, for example, Rio de Janeiro. Also, a world-time watch cannot fully take into account the one-hour daylight savings change from winter

SPECS

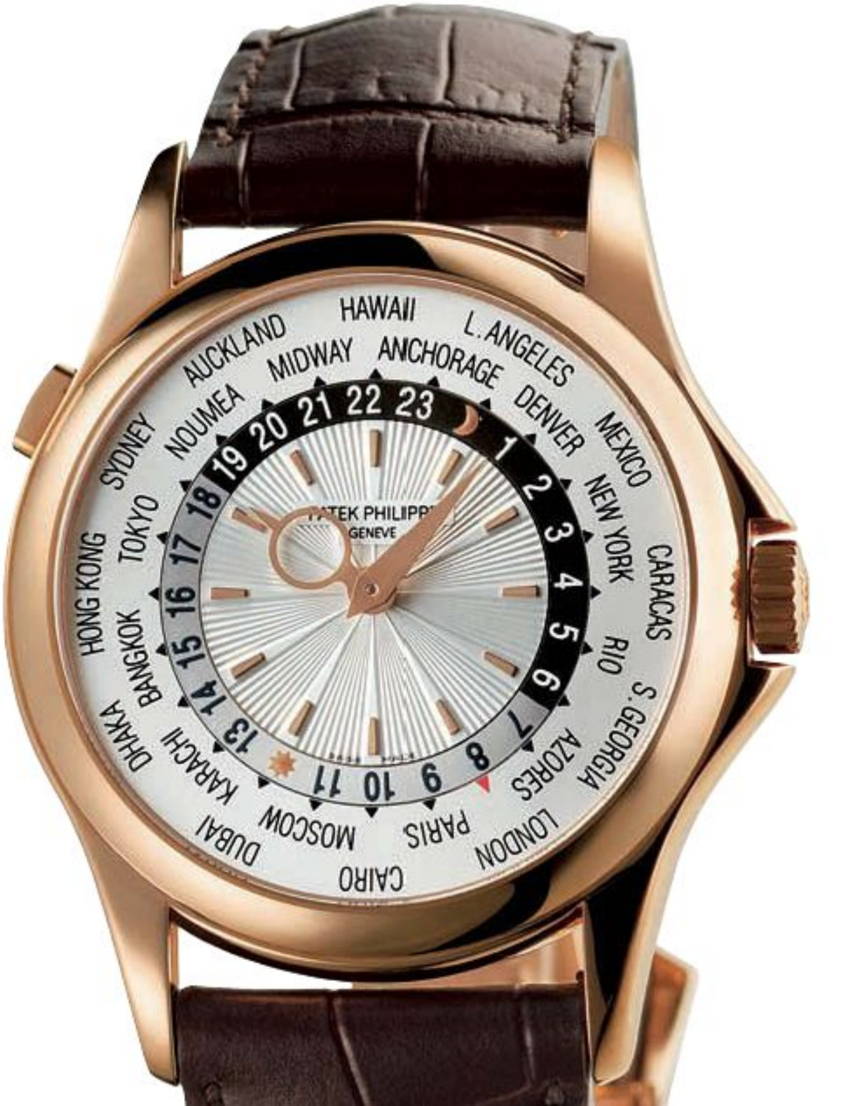
PATEK PHILIPPE WORLD-TIME WATCH

Functions: Hours, minutes, world time

Movement: Caliber 240HU, automatic; 21,600 vph; fine adjustment via weights on the Gyromax balance; 48-hour power reserve

Case: Rose gold, curved sapphire crystal, fully threaded back with transparent sapphire viewing window, water-resistant to 25 meters

Price: $38,800



to summer because some countries either don't change their clocks twice annually or else they reset them on dates that don't coincide with the beginning and end of daylight savings in other parts of the world.

Despite these geographic (and political) issues, Patek Philippe's World-Time Watch enjoys widespread popularity thanks to its convenient and easy-to-understand operation. If its wearer wants to put a new reference city at the 12 o'clock position, he presses the ergonomically shaped button at 10 o'clock, which moves the city-ring and the hour-ring counterclockwise in hourly increments and also advances the gold hour hand. All three adjustments can be made without affecting the accuracy of the minute hand. If the wearer wants to readjust the time, he pulls out the crown and turns it, which rotates only the hour disk: this makes perfect sense, because the reference location remains unchanged and only the time display needs resetting. A bicolor hour scale and sun and moon symbols help the wearer to distinguish between daytime and nighttime hours.

Automatic Caliber 240 HU, with a balance that oscillates at a pace of three hertz, is responsible for the smooth functioning of the world-time indication. Among the advantages of this *manufacture* movement are its thinness (just 3.9 millimeters), a Gyromax balance with variable mass elements, and a finely decorated gold microrotor. The 9.4-mm-thick rose-gold case fits perfectly against the wrist and includes two sapphire crystals (front and back) and a fully threaded caseback as standard equipment.

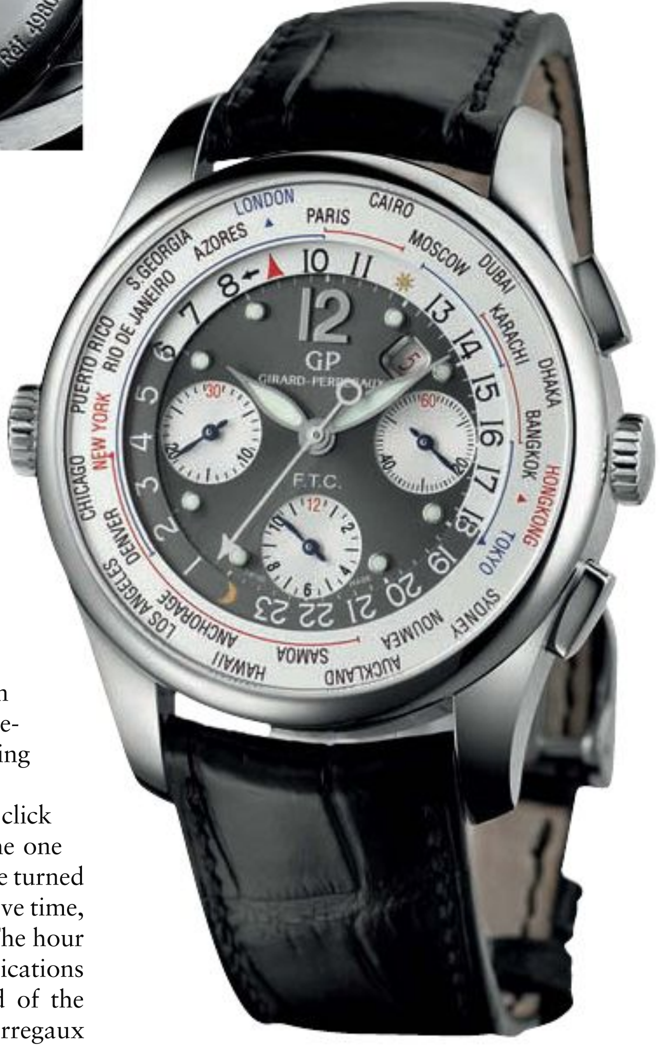
GIRARD-PERREGAUX

The **ww.tc Financial** from Girard-Perregaux is equipped with more functions than the Patek, but its world-time system is considerably simpler. This model displays the date, which is missing on Patek Philippe's watch, and also offers a chronograph function, both of which are welcome additions. On the other hand, Girard-Perregaux's watch has no quick-adjustment mechanism for the time zones. If you've placed Paris at the 12 o'clock position and you fly to New York, you need to turn the second screwed crown at 9 o'clock until the new reference location comes around to the top of the dial; then you need to reset the time in the traditional manner, which requires stopping the movement. An adjustment that requires only six taps of a button on the Patek Philippe watch demands both unscrewing and turning two crowns on the ww.tc.

The city ring here doesn't click through preset increments like the one on the Patek Philippe, but it can be turned in both directions, which could save time, depending on your destination. The hour ring has the same day-night indications on the Patek watch, but instead of the outdated "Caracas," Girard-Perregaux chose "Puerto Rico" to represent the GMT–4 time zone.

Girard-Perregaux also dreamed up a clever and potentially useful function unique to the ww.tc Financial, which debuted in 2007: blue and red strokes along the hour-ring indicate when stock exchanges are open in the world financial capitals of London, New York, Hong Kong and Tokyo. If the red arrow on the hour-ring points to one of these strokes, the market in the corresponding city is open for trading. The gaps between the curved strokes indicate lunch breaks at the several stock exchanges.

In addition to its diverse array of functions, this watch offers a finely decorated self-winding movement with Glucydur balance. A hand-stitched crocodile-skin strap further adds to its appeal. The



SPECS

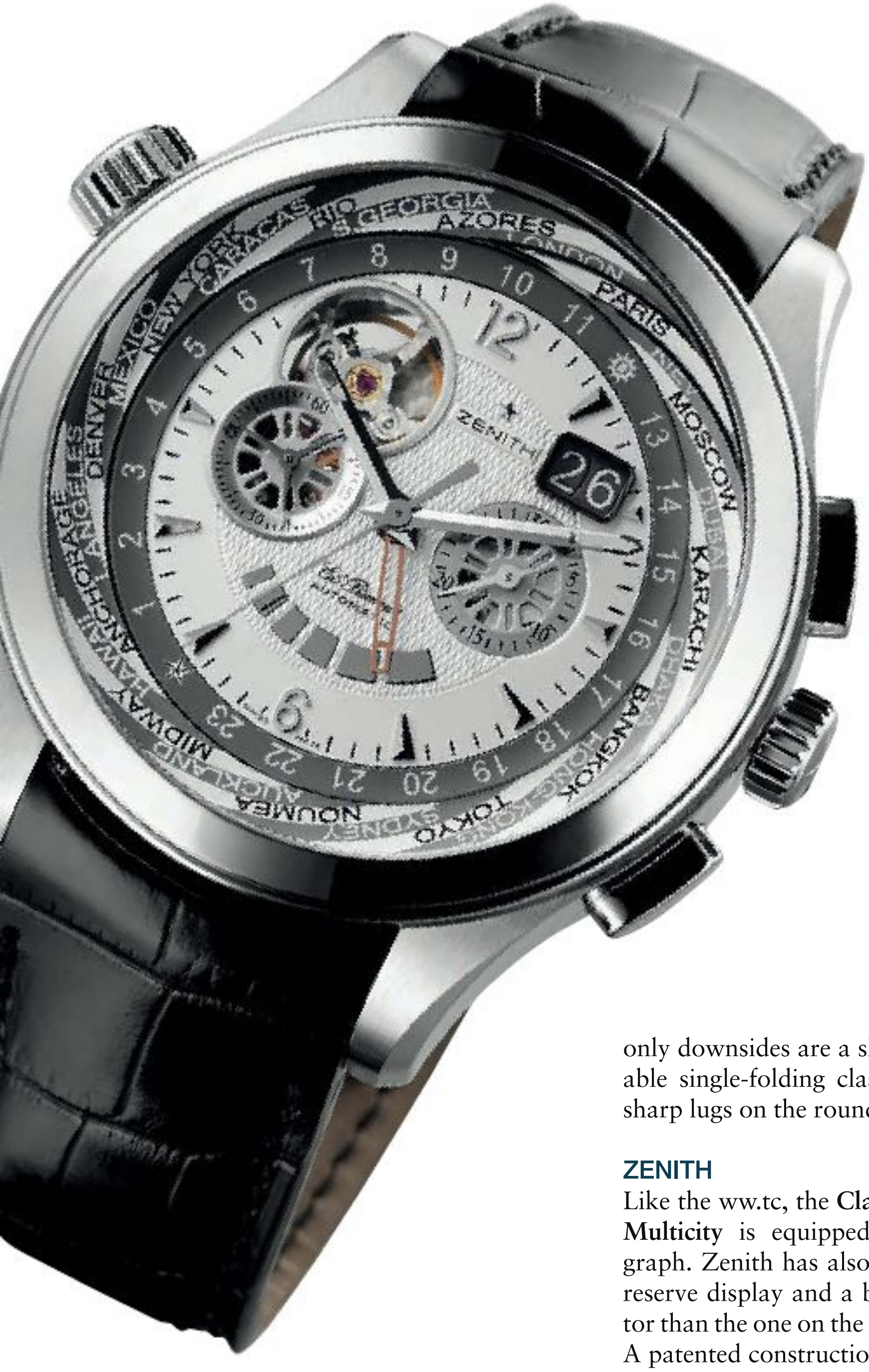
GIRARD-PERREGAUX WW.TC FINANCIAL

Functions: Hours, minutes, small seconds; world time including trading hours on four stock exchanges; chronograph; date display; stop-seconds function

Movement: Caliber GP033CO, automatic; 28,800 vph; fine adjustment via index tail; Glucydur balance; 46-hour power reserve

Case: Stainless steel, curved, non-reflective sapphire crystal, caseback held in place by six screws, sapphire exhibition caseback, water-resistant to 30 meters

Price: $14,650



SPECS

ZENITH CLASS TRAVELLER OPEN MULTICITY

Functions: Hours, minutes, small seconds; world time; chronograph; big date; power-reserve display

Movement: El Primero 4037, automatic; 36,000 vph; fine adjustment via eccentric screw; Glucydur balance; 50-hour power reserve

Case: Stainless steel; curved, nonreflective sapphire crystal; caseback held in place by eight screws; sapphire exhibition caseback; water-resistant to 50 meters

Price: $14,000

only downsides are a slightly uncomfortable single-folding clasp and somewhat sharp lugs on the rounded case.

ZENITH

Like the ww.tc, the **Class Traveller Open Multicity** is equipped with a chronograph. Zenith has also given it a power-reserve display and a bigger date indicator than the one on the Girard-Perregaux. A patented construction with three numbered disks enables it to pack both large digits into a small space and, for certain combinations, to display both of them on the same plane. Unfortunately, the numerals take a full hour to advance from one date to the next, with the transition beginning each night at 11:45 p.m. and not finishing until 12:45 a.m.

The unorthodox positions of the crowns also take a bit of getting used to. You can reset the time by extracting the crown to its first position; this will also move the 24-hour ring, with its sun and moon symbols, accordingly. You have to pull it out to its second position to reset the date. The chronograph's buttons, with their large surface areas, are convenient to operate. The only aspects that detract from this model's user-friendliness are the lack of a stop-seconds mechanism and the relatively small size of the crown.

The larger, additional crown at 10 o'clock can be used to conveniently reposition the city ring in both directions. The other adjustments are performed as they are on the Girard-Perregaux model: the wearer has to adjust the time to match the new reference location. This watch was launched in the spring of 2007, so, like the Patek Philippe, it includes "Caracas" among the locations on the city ring. Unlike the other watches we reviewed, the Zenith uses the Ukraine's capital, Kiev, to represent the GMT+2 time zone rather than Cairo, probably reflecting the fact that Zenith sells more watches in Eastern Europe than in Egypt. All in all, the non-screwed and easily turned crown makes it easier to adjust the world time on the Zenith than on the Girard-Perregaux. But Zenith's watch doesn't couple the quick-adjustment mechanism with the reference location and the time, so resetting it is not as easy as readjusting Patek Philippe's World-Time Watch.

Reading both the world-time display and the chronograph are more difficult on the Zenith watch than on the others. The hour ring isn't subdivided into light (daytime) and dark (nighttime) segments, and the reference locations are arranged like a propeller around the city-ring, which makes it challenging to correlate each name with its corresponding hour. However, the alternating black and white type used for the city names make this somewhat easier, as does the curved frame at 12 o'clock, printed on the underside of the crystal, which outlines the selected city.

What the Class Traveller Open Multicity lacks in legibility, it makes up for in the quality of its manufacturing. Everything is laboriously and solidly crafted: from the brawny 46-mm case with sapphire crystals front and back, plus eight screws to hold the back in place, through the guilloché-decorated and pierced dial, to the integrated alligator-leather strap with its extremely sturdy double-folding clasp.

Of course, this watch's preeminent highlight is its caliber: El Primero 4037, which supports more complications than any of the other movements featured in this review. Among the particularly appealing details in this fast-oscillating movement, whose balance runs at a pace of five hertz, are the barely concealed gear train, the satin-finished chronograph lever, and the elaborately crafted, ball-borne rotor.

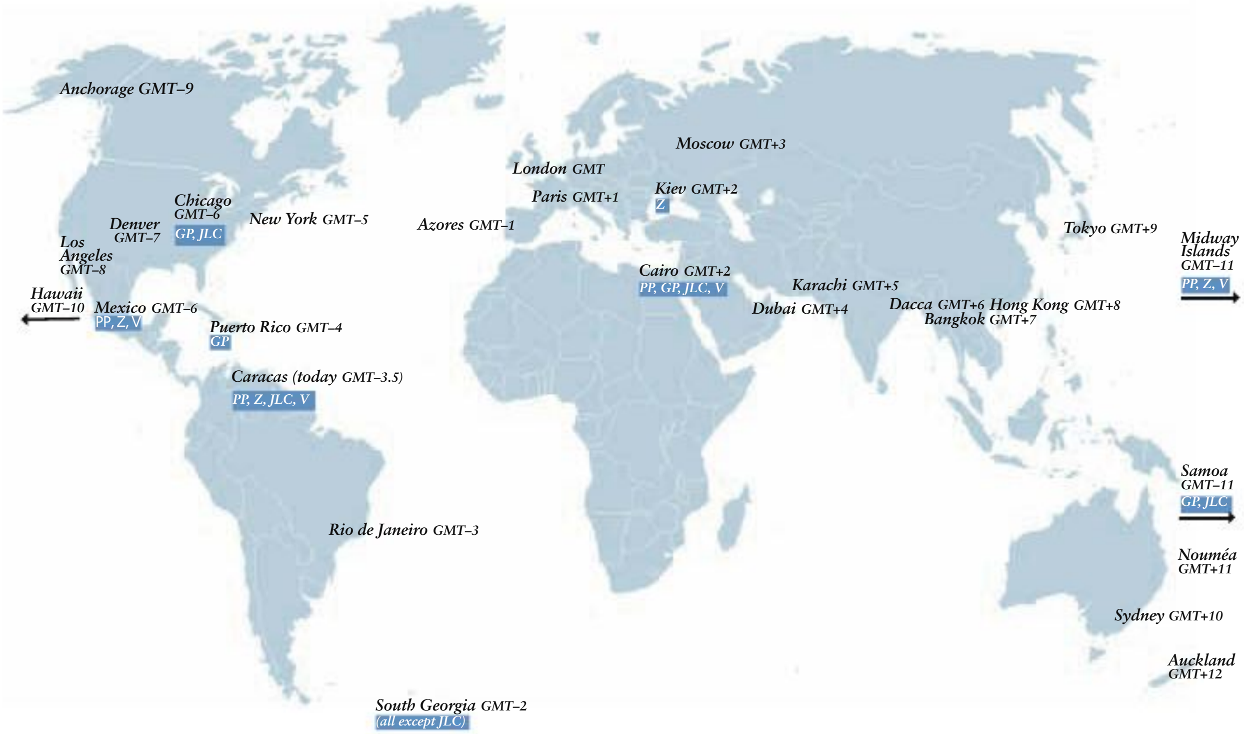
JAEGER-LECOULTRE

Jaeger-LeCoultre's Master World Geographic includes a quick-switching mechanism similar to that of Patek Philippe's world-time watch. Here the world time is not coupled with the time on the main dial, but instead with that on the subdial at 7 o'clock. If the wearer turns the crown at 2 o'clock, the city ring and hour hand reposition themselves much the same way they do on Patek's model, except that on this watch they can be reset in both directions.

This watch has two time displays: the one on the subdial can be used to keep track of the time in a second zone. The chosen reference time is indicated by the red triangle at 6 o'clock. Using this feature, a businessman

CITIES ON THE RING: WHO SHOWS WHAT

The brands' initials indicate differences in the choices of cities on the city-rings: Zenith uses Kiev rather than Cairo to represent GMT+2; Girard-Perregaux and Jaeger-LeCoultre use Samoa rather than the Midway Islands for GMT−11 and Chicago rather than Mexico to indicate the GMT−6 zone; Girard-Perregaux is the only brand that uses Puerto Rico rather than Caracas to represent GMT−4; and only Jaeger-LeCoultre does not acknowledge the GMT−2 time zone, for which the others use South Georgia as the representative place name.



in his home office can glance at his watch and see what time it is in the zones where his business associates live and work.

Jaeger-LeCoultre's world-time mechanism is just as easy to operate as Patek Philippe's, but world travellers will find that its greater functional diversity makes life a bit more difficult away from home. The time on the subdial must first be synchronized with the date, which requires a series of steps. For example, say you are on a plane from New York to Bangkok. As you depart, both dials indicate the same time, with the red triangle pointing to your time zone (in New York, GMT–5). During the flight, you use the additional crown at 4 o'clock to reset the city-ring to Bangkok (GMT+7). Now you have the correct local time at your destination on the subdial, but the date display is incorrect because it is linked to the time on the main dial.

A better solution is to change the main dial to the new local time. To do this, pull out the crown at 2 o'clock to its second position and then turn it to reset the hour-hand, either forward or backward, through the same number of hourly increments as you moved the city ring. The time on the subdial and the 24-hour ring automatically reset themselves when the hour hand is reset, so the main time will be incorrect after the resetting. To bring it back into its proper position, you must now push the crown at 4 o'clock inward to its first position and then reset the time on the subdial in hourly steps until it's synchronized with the new local time. Both dials now show the time in Bangkok, and the date display will jump each night according to Thai time. The wearer can opt to use the subdial to indicate the time in a different zone — a useful feature for a businessman abroad who must frequently phone his home office.

With displays for both the date and the time in a second zone, Jaeger-LeCoultre's watch is even more useful for travellers than Patek Philippe's. Also, the 4 o'clock crown on the Jaeger saves time compared to Patek's push-piece, which advances the display in only one direction. The presence of the additional functions, however, makes Jaeger's world-time mechanism somewhat less user-friendly. Legibility is also an issue: the place names here are printed in the smallest typeface of all the watches we reviewed, and the petite, hand-type date display is harder to read than the window-type date display on the Girard-Perregaux, to say nothing of the easy-to-read big date on the Zenith.

The city ring on the Master World Geographic has two additional indicators not found on any of the others. The first is the International Date Line, marked by two red triangles between Hawaii and Samoa; the second is the "S" added to each reference location where the time is set one hour ahead each spring, which reminds the wearer to advance the ring through one additional increment. It is up to the wearer, of course, to keep track of which time zones can be read as usual in the summer and which must be changed. Even Jaeger-LeCoultre could not fully solve the discrepancies created by some nations using different dates for their annual daylight savings time changes.

This watch, launched in 2006, still uses Caracas to represent GMT–4, despite the fact that this city now occupies the

SPECS

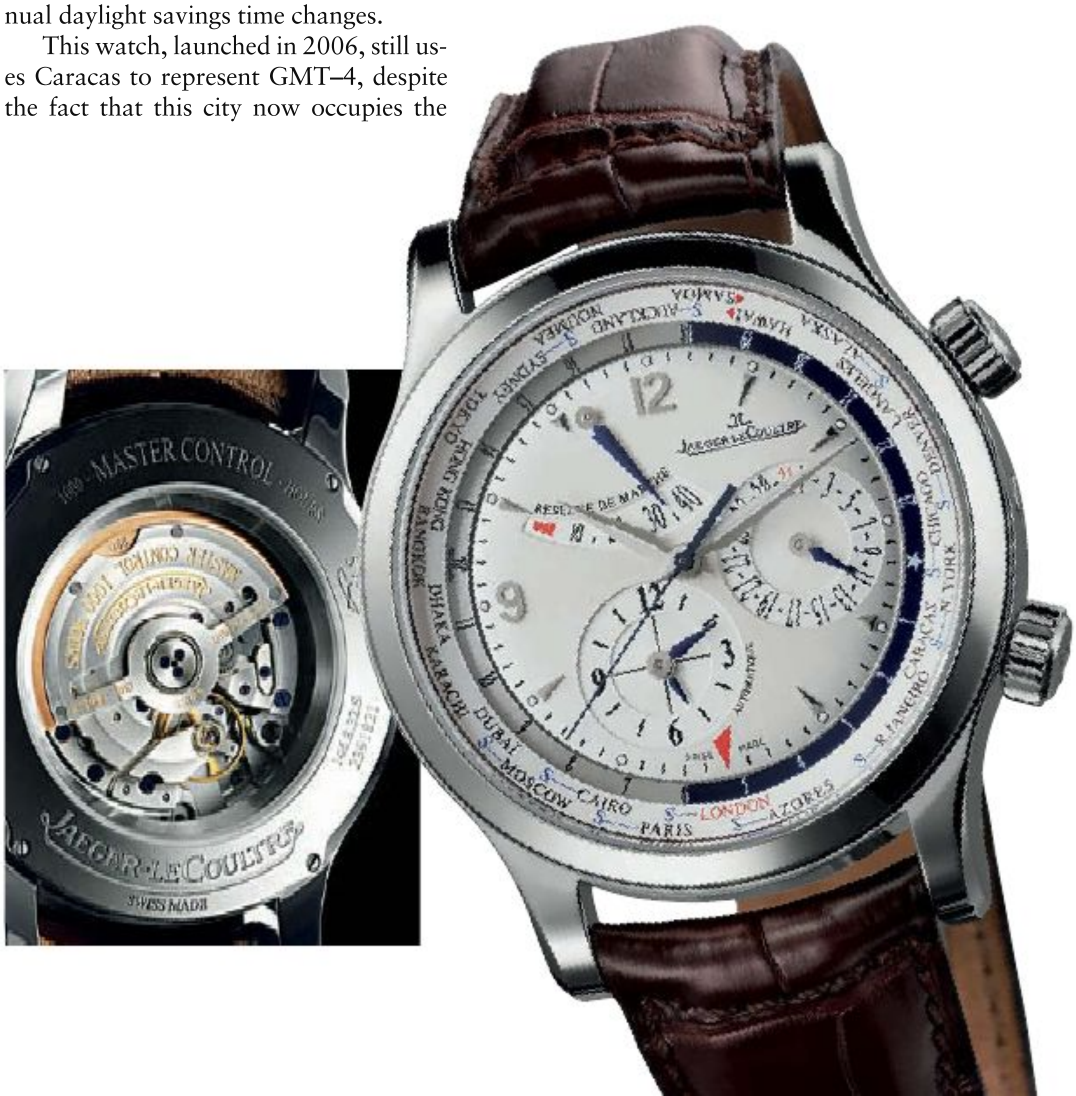
JAEGER-LCOULTRE MASTER WORLD GEOGRAPHIC

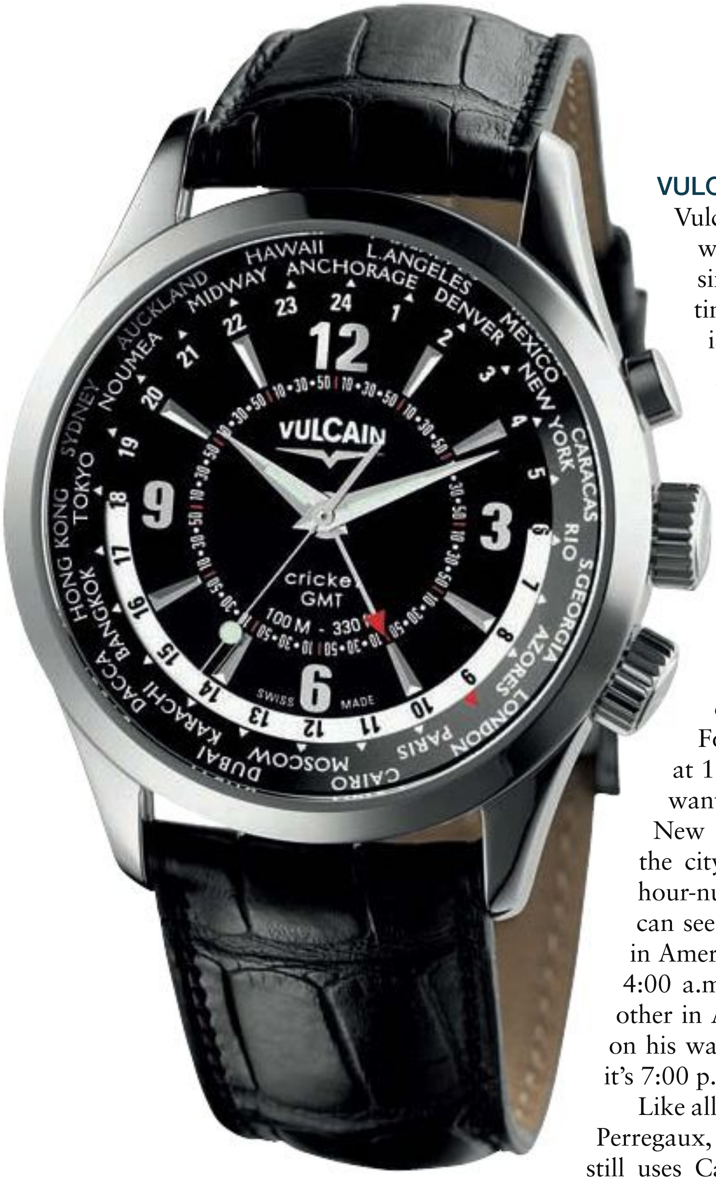
Functions: Hours, minutes, seconds; world time including a second time zone; date, power-reserve display; stop-seconds function

Movement: Caliber 936, automatic; 28,800 vph; fine adjustment via weight screws on the Glucydur balance; 43-hour power reserve

Case: Stainless steel, curved sapphire crystal, caseback held in place by four screws; water-resistant to 50 meters

Price: $13,600





GMT–3½ time zone. Also, the GMT–2 time zone between the Azores and Rio de Janeiro is not represented at all, probably because it primarily stretches across the Atlantic Ocean and people in all countries that lie partly within it set their clocks according to other time zones. All the other watches reviewed use the island of South Georgia, which lies between Tierra del Fuego and the Antarctic, to represent this zone.

Jaeger-LeCoultre's craftsmanship is good in all respects, from the 41.5-mm case with two sapphire crystals, to the decorated *manufacture* caliber with freely oscillating Glucydur balance, to the well-upholstered crocodile-skin strap with its solid, single-folding clasp.

VULCAIN

Vulcain's **Cricket Aviator GMT**, which debuted in 2007, takes a simpler approach to the world-time theme. Only the city-ring is moveable here, and it isn't propelled by the watch's movement. This means that the wearer must manually set the world time, which is shown correctly only for the moment. To do this, he operates the screwed crown at 4 o'clock to turn his home location, in whichever direction he prefers, into synchrony with the current time. For example, if you're in Paris at 10:00 a.m. local time and you want to know what time it is in New York and Sydney, you turn the city-ring until Paris shows the hour-number "10." Afterwards you can see that your business associate in America is still asleep (because it's 4:00 a.m. in the Big Apple) and the other in Australia is probably already on his way home from work (because it's 7:00 p.m. Down Under).

Like all the others except the Girard-Perregaux, the Cricket Aviator GMT still uses Caracas on its city-ring. This ring is just as crowded, and it is printed in just as small a font, as the one on the Jaeger-LeCoultre watch, but Vulcain's ring is easier to read without the markings for the beginning and end of daylight savings time.

The world-time indication is useful here, but like all Cricket models, it is the alarm function that most distinguishes the Aviator GMT. The separate movement that powers the alarm is wound by turning the crown at 3 o'clock. Afterward, using the push-piece at 2 o'clock causes the crown to jump outward to a second position, where it can be turned to preset the alarm time along a scale calibrated in 10-minute increments. Reinserting this crown puts the alarm in active mode: when the preset time arrives, the watch will emit its famous buzz.

The Cricket's rasping mechanical chirp is loud enough to make you forget that the time of day and the alarm time can only be adjusted in one direction. It may also make you forget that, like the Patek Philippe, this timepiece offers neither a date display nor a stop-seconds function. But both of these are quickly forgiven when you take a look at the price tag: for $4,640, you get a watch boasting a *manufacture* movement and the world's loudest mechanical alarm.

Comparing and contrasting these watches, it's apparent that each has its own specific strengths. The Patek Philippe and Jaeger-LeCoultre offer the best-thought-out world-time mechanisms: the one on the former is easier to understand, but the latter scores points thanks to additional functions that are very practical for travellers. Girard-Perregaux and Zenith opt for a simpler time-zone function, but they also include a chronograph mechanism. The ww.tc is the easiest to read and the Class Traveller Open Multicity boasts the most elaborate craftsmanship. Vulcain uses a very simple world-time indicator, but combines this with an alarm function, which is always useful for travellers. Furthermore, Vulcain sells its model for a fraction of the price of these others. ○

SPECS

VULCAIN CRICKET AVIATOR GMT

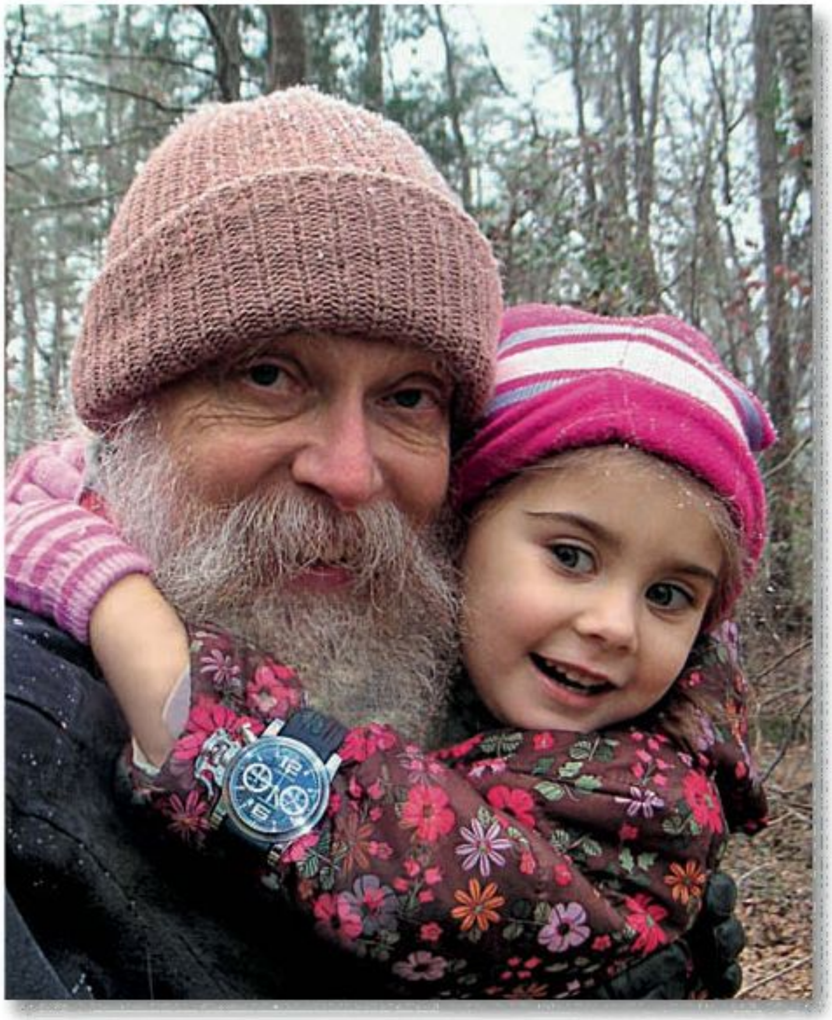
Functions: Hours, minutes, seconds; manual world-time indication; alarm

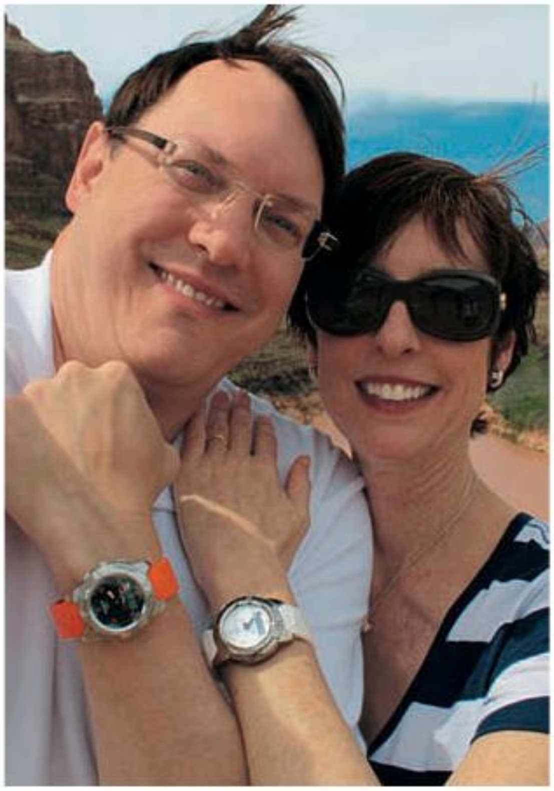
Movement: Cricket V-10, hand-wound; 18,000 vph; fine adjustment via eccentric screw; 42-hour power reserve

Case: Stainless steel, curved sapphire crystal with nonreflective treatment on both its surfaces, fully threaded stainless-steel back with holes to allow the alarm sound to escape; water-resistant to 100 meters

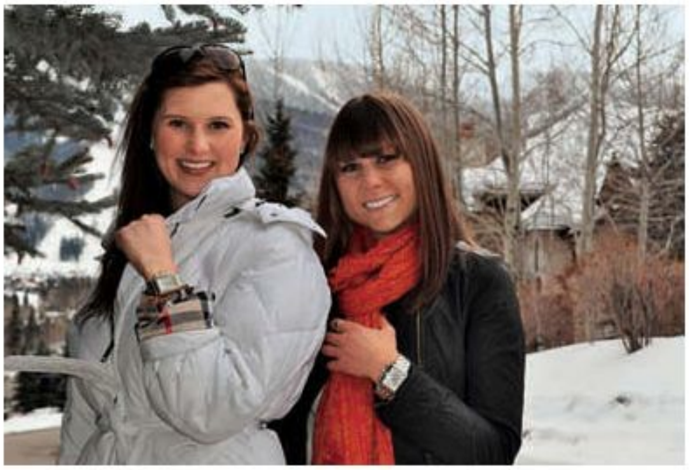
Price: $4,640

Barlow Soper and his granddaughter Madi, who is modeling her grandfather's Graham Chronofighter R.A.C. Black Shock, enjoy a rare Louisiana snowfall.

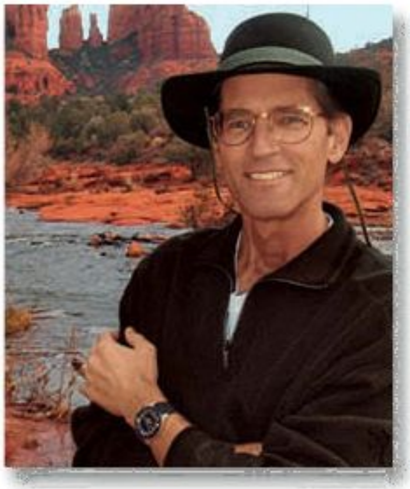




Ken and Chris Jones, in the Grand Canyon courtesy of the Hualapai Tribe, sport their Tissot T-Touch and Limited Edition Danica Patrick Tissot T-Touch watches.



Laura McCall and Brooke Gullo: a couple of Louisiana State University Tigers on the loose in Beaver Creek, Colorado during Mardi Gras break. Laura (left) sports her Michele Deco Diamond and Brooke rocks her Michele Deco XL.



Ron Lewis savors the open landscapes of Sedona, Arizona, wearing his new Breitling Airwolf Raven Limited Edition.

Richard Jurak, underground at the Mt. Ida Gold Mine in Australia, wears his Rolex Deepsea Sea-Dweller.

Even on vacation, knowing the time is important in the Villabrozza family. From left to right: Carr wears a Rolex Datejust, Sedge an IWC Pilot Spitfire, and Parker a Breitling Aeromarine Chrono SuperOcean.

Jeff Schultz shows off his Panerai 186 Arktos GMT while enjoying a cold beer on the street in Mexico's Riviera Maya.

The Jazzmaster couple, Neth and Roy Marukot, at the Calgary Airport: she wears a Hamilton Jazzmaster Lady; he's in a Jazzmaster Viewmatic.

Watch and wine lover Lynn Hung sports her Zenith Star Open Sea El Primero at Leonesse winery in Temecula, California.

To submit a photo, please send your image to **photo@watchtime.com** with a short description identifying each person in the photo and the watch each one is wearing. Please give the first and last name of the wearer and the brand and model of the watch. If the photo was taken at an event, please specify when and where it was held. Only clear images in which both the face of the watch and the wearer are visible will be considered for publication. Images must be in JPEG format and no smaller than 1 MB. Only the best-quality and most interesting photos will be considered.

By Joe Thompson

The Cataclysm That Wasn't

Wyler Genève at Baselworld 2009

A year ago, on the first day of Baselworld, in the thick of the Great Recession, a concerned Swiss watch CEO told me, "This crisis is as bad as the quartz crisis."

"Hold on," I told him. "I covered the quartz crisis. Swiss watch jobs fell from 90,000 to 28,000. How is this as bad as that?"

"Because in the quartz crisis people were buying watches, they just weren't buying Swiss watches," he said. "In this crisis nobody's buying watches."

He had a point. At the beginning of 2009, even the world's hottest market, China, was ice cold, down 35 percent from January through March. At Baselworld '09, it was evident that Swiss executives were shaken. China was the bellwether. If that market had collapsed, the Swiss faced a nightmare scenario. One executive told me that 200 of Switzerland's 600 brands would disappear over the next year. I was shocked. The figure seemed extraordinarily high. So I checked it out. During the rest of the show, I ran it by more than a dozen top Swiss watch executives. "Can that be?" I asked. In all cases but one, the answer was "Absolutely." Usually followed by "I can't wait. We need a shakeout badly."

I reported the 200 corporate casualties prediction in our Baselworld analysis story, "The Coming Correction," in the August 2009 issue. While 2009 was, indeed, a horrific year for the Swiss watch industry, the brand bloodbath that some feared and others favored did not happen. Some brands did die (Villemont, Wyler Genève and a few other obscure names), but on the whole Swiss brands so far have survived the recession.

At Baselworld this year, I followed up with those certain that the end was nigh to find out why the sky did not fall on 200 brands. They cited six factors:

1) The industry overreacted to the terrifying sales figures from December '08 through March '09. Sentiment was bleakest in March, when Baselworld was held.

2) Had China continued to slump the way that the U.S. did in 2009, calamity would have struck as predicted. But China recovered. The rebound began in the spring; by the fall the Chinese market was booming again, bringing relief to a number of firms.

3) The Swiss government responded to the crisis with a partial unemployment program that enabled firms to put workers on short time and, with government assistance, pay them 80 percent of their normal salary. This *chômage partiel* plan allowed firms to cut production, reduce workforce hours and stay afloat.

4) Swiss watch brands remain a lure for new investors. A number of brands (Anonimo and Vulcain are two) got new leases on life thanks to new owners.

5) The predicted shakeout did happen, not to the brands but to their component suppliers. Brands on the brink passed the pain onto their suppliers in the form of cancelled orders and non-payments. "Some brands just cut," says Jean-Claude Biver, CEO of Hublot, "and they didn't care if by cutting they destroyed their suppliers." That's what brought down BNB Concept and others.

SO WHY DID THE SKY NOT FALL, AS PREDICTED, ON 200 SWISS WATCH BRANDS IN 2009?

6) It ain't over. Brands on the brink that managed to survive 2009 are still on the brink in 2010. Some of the industry's 600 brands remain in a precarious position. "They might disappear after Baselworld if they do not get orders," said François Thiébaud, CEO of Tissot and president of the Baselworld Swiss Exhibitors Committee. Meanwhile, CEOs of strong brands continue to keep their fingers crossed. "We were hoping that the crisis would clean up the market and a few of these brands would be gone," one prominent CEO told me.

So who was the one executive who didn't buy the 200 casualties figure? In "The Coming Correction" I wrote: "Amidst all the concern at Baselworld about the gloomy economic picture there was one cockeyed optimist, Swatch Group Chairman Nicolas G. Hayek. Hayek's behavior has many Swiss watch observers scratching their heads. He consistently predicts a recovery for watches in the second half of the year, a position some consider delusional. Moreover he refuses to lay off workers, despite the slowdown."

The sudden surge of watch sales in December surprised a lot of Swiss watch executives. Not Hayek. It turns out that the man whose crisis forecast was most accurate was the "cockeyed optimist." "It's bad," Hayek said in our article. "We'll have another 12 months of a bad economy. There is going to be a shakeout but it won't be as bad as people think." ○

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